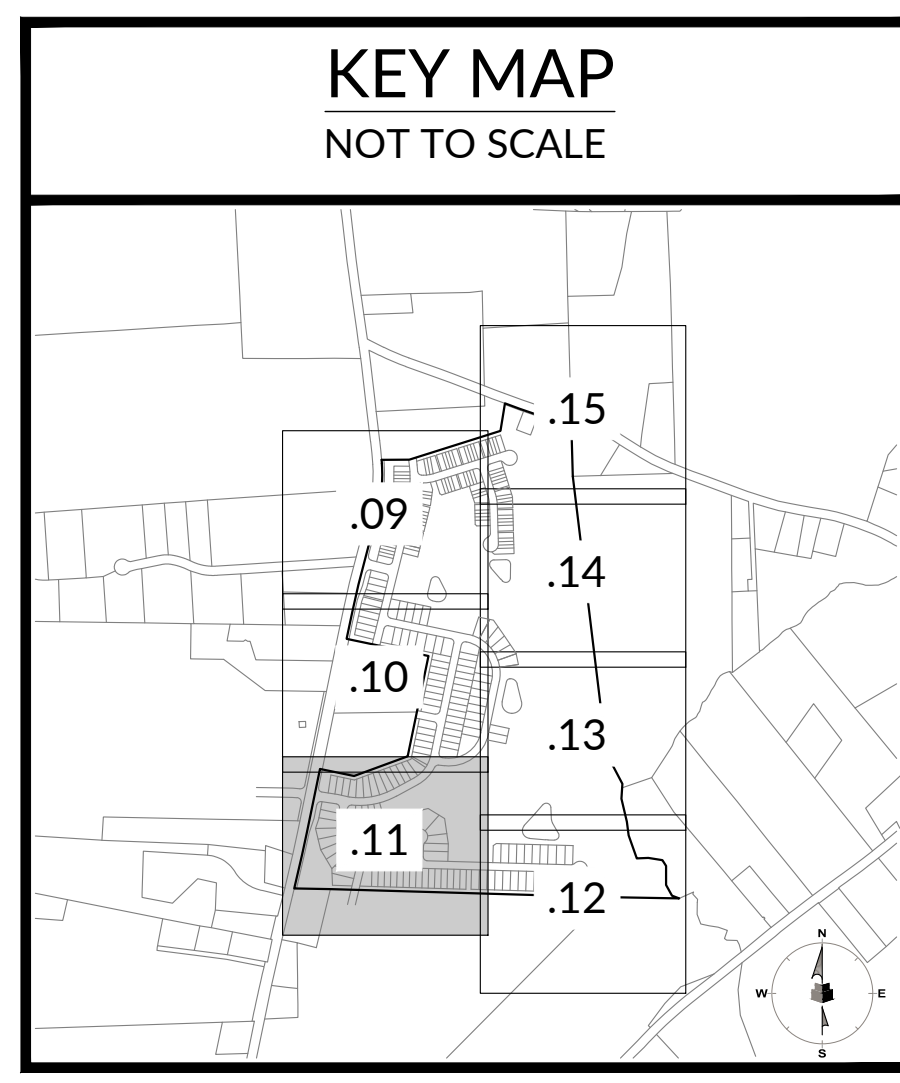


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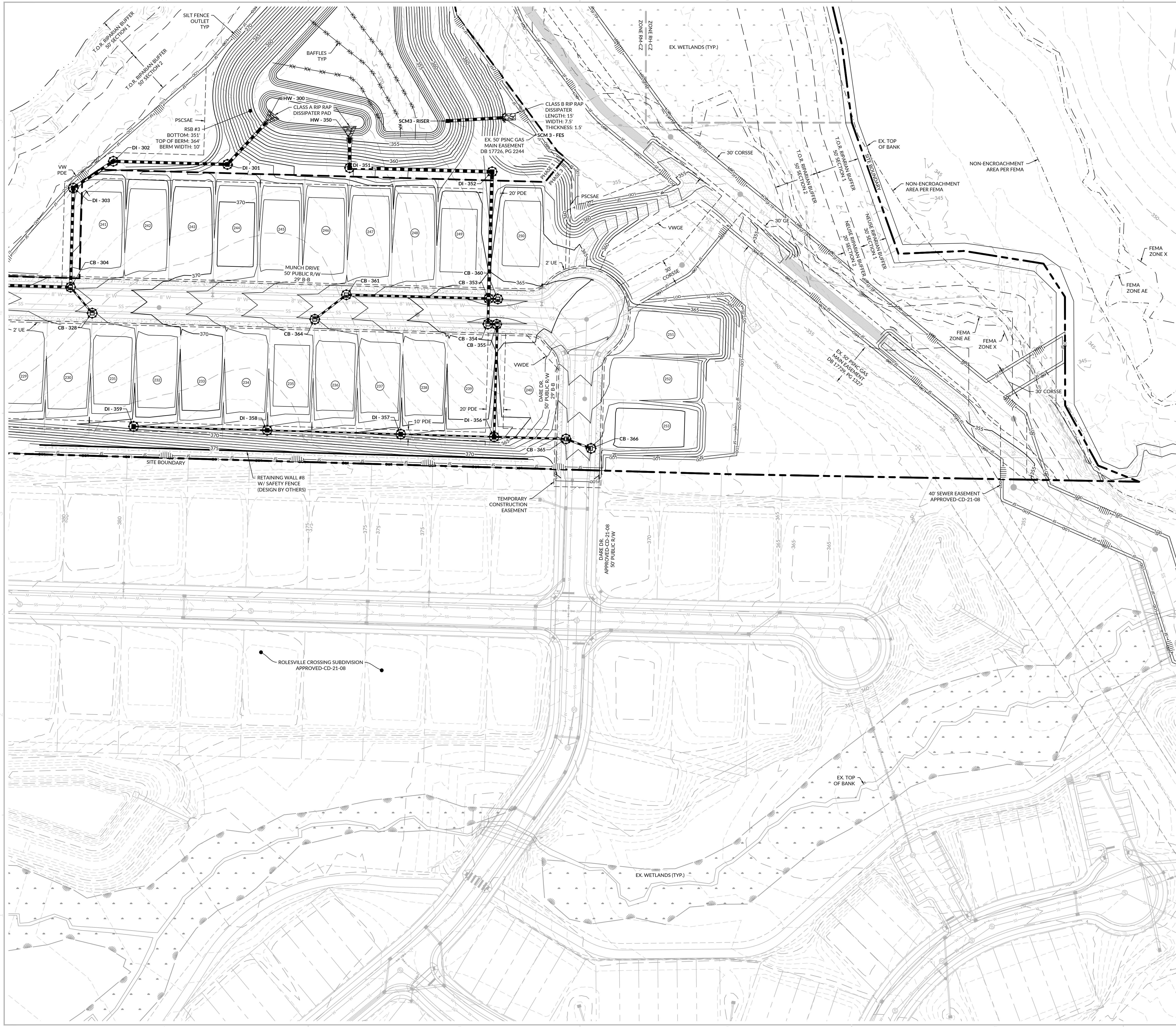
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 REVISIONS:
 1 - 01/02/2025
 REVISED PER REVIEW COMMENTS

WR JOB NUMBER: 23-0045
 DRN: WR DGN: WR CKD: WR

**EROSION CONTROL
 PLAN (STAGE 2)**

C7.11

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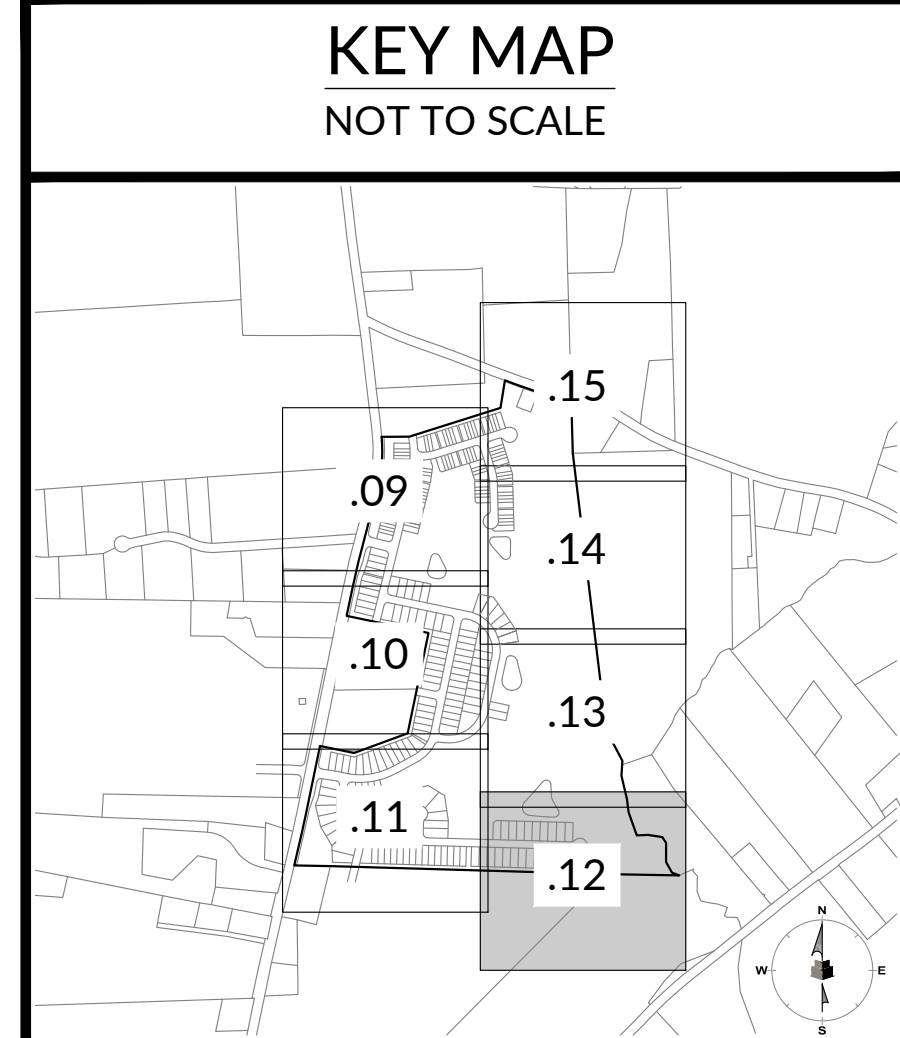
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 CONSTRUCTION
 JEFFREY C. COOK

INITIAL PLAN DATE: 11/01/2024
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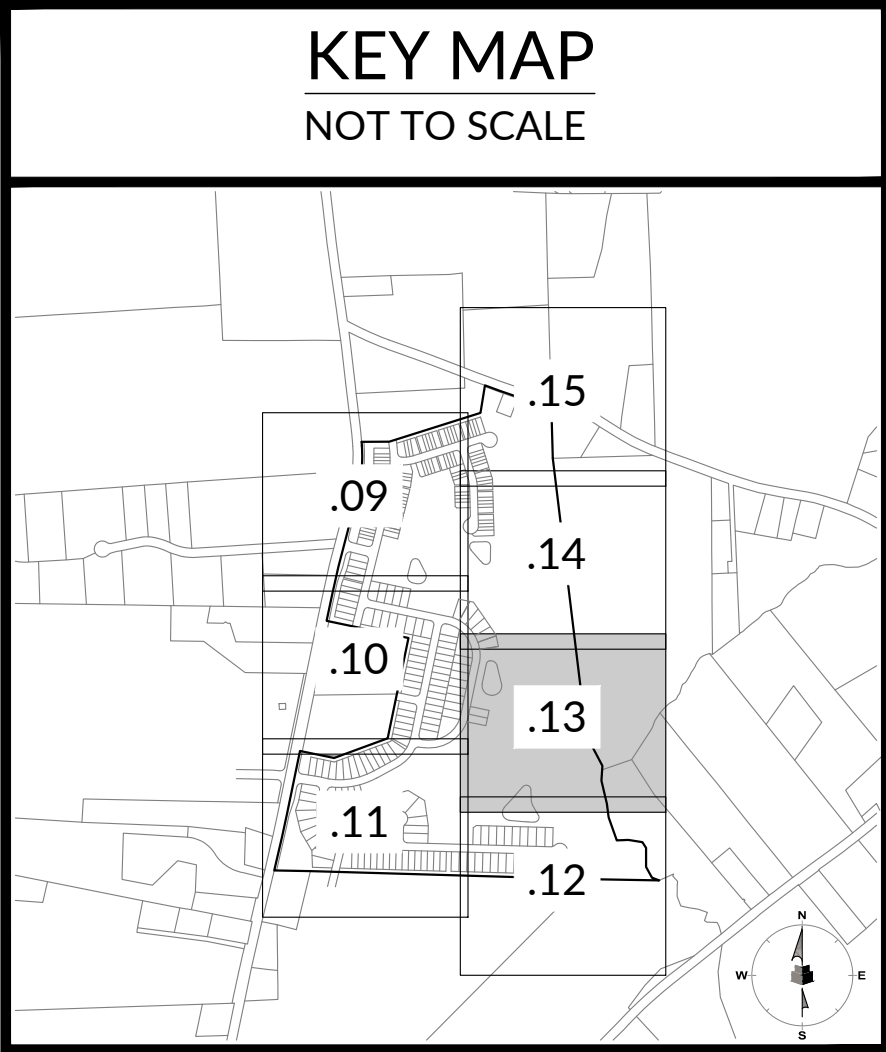
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**EROSION CONTROL
 PLAN (STAGE 2)**

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CONSTRUCTION INFRASTRUCTURE DRAWINGS
BROADMOOR
CID-24-06

PRELIMINARY
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INITIAL PLAN DATE: 11/01/2024
REVISIONS:
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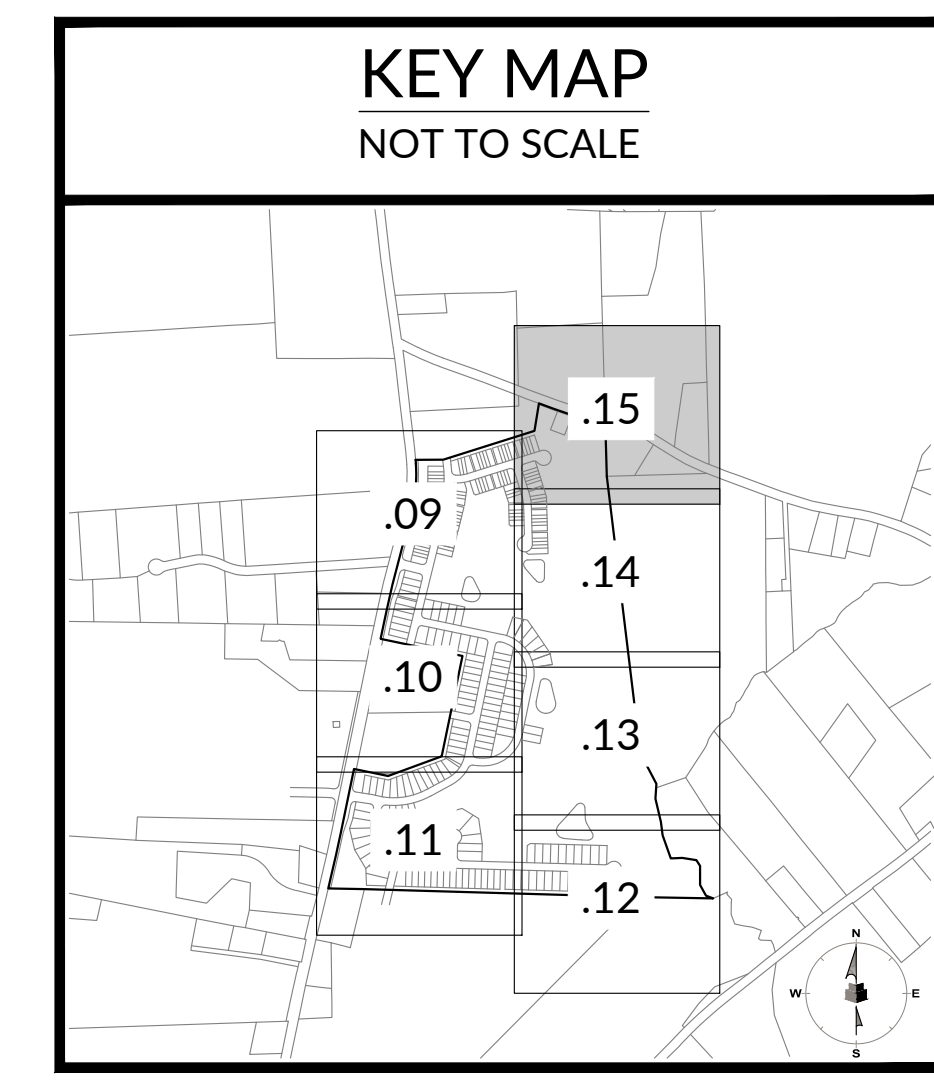
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**EROSION CONTROL
PLAN (STAGE 2)**

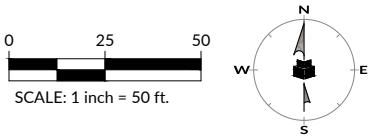
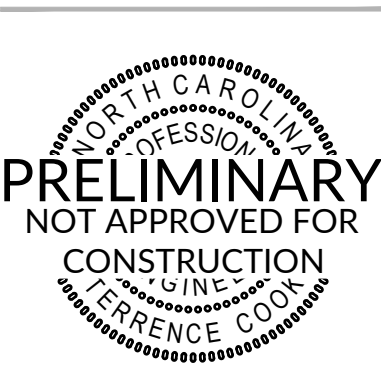
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CONSTRUCTION INFRASTRUCTURE DRAWINGS
**BROADMOOR
CID-24-06**
ROLESVILLE ROAD | ROLESVILLE, NC 27587 | WAKE COUNTY



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WR JOB NUMBER: 23-0045
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**EROSION CONTROL
PLAN (STAGE 2)**

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EROSION CONTROL NOTES:

- 1. RECEIVING WATERSHED: BUFFALO CREEK
2. TOTAL LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE = 71 ACRES.
3. ALL LAND DISTURBING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH SEDIMENTATION AND EROSION CONTROL STANDARDS AND PRACTICES PRESCRIBED BY THE STATE OF NORTH CAROLINA AND WAKE COUNTY...
15. WHERE DEWATERING OF TRENCHES, PITS, AND OTHER EXCAVATIONS BECOMES NECESSARY THE DISCHARGE MUST BE DIVERTED TO A SEDIMENT FILTER BAG BEFORE BEING DISCHARGED TO THE GROUND.
16. ADEQUATE EROSION CONTROL MEASURES MUST BE INSTALLED, MAINTAINED, AND ADJUSTED AS NEEDED DURING THE DEMOLITION OR CLEARING AND GRUBBING PHASES AS WELL AS THROUGHOUT THE LIFE OF THE PROJECT AND UNTIL PERMANENT VEGETATION IS ESTABLISHED.
17. IN INSTANCES WHERE THE DIFFERENCE IN HEIGHT OF EMERGENCY SPILLWAY AND BOTTOM ELEVATION OF A POND IS GREATER THAN 5 FEET, DOUBLE-HEIGHT Baffles ARE REQUIRED.
18. CONCRETE WASHOUTS SHOWN FOR CURB & GUTTER AND SIDEWALK USE ONLY.
19. EXISTING TEMPORARY SEDIMENT BASIN SHALL BE REPAIRED/MAINTAINED AS NECESSARY TO MEET REQUIREMENTS OF THIS PROJECT.
20. SCM FOREBAYS SHALL NOT BE REQUIRED WHILE SCM IS ACTING AS AN EROSION CONTROL DEVICE.
21. VELOCITY DISSIPATORS SHALL BE INSTALLED AT THE END OF EACH FES AND SHALL HAVE A FILTER FABRIC UNDERLINER.
22. THE CONTRACTOR SHALL INSTALL TEMPORARY DIVERSION BERMS ROUTING CONSTRUCTION RUNOFF TO APPROPRIATELY SIZED SLOPE DRAINS WITH INLET/OUTLET PROTECTION WHEREVER NECESSARY OR AS REQUIRED BY WAKE COUNTY AT TOP OF SLOPES DURING/AFTER SLOPE FORMATION TO PREVENT SLOPE EROSION.

CONSTRUCTION SEQUENCE:

- 1. SCHEDULE A PRECONSTRUCTION CONFERENCE WITH THE ENVIRONMENTAL CONSULTANT. OBTAIN A LAND DISTURBING PERMIT.
2. INSTALL GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS OR OTHER MEASURES AS SHOWN ON THE APPROVED PLAN. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES.
3. CALL ENVIRONMENTAL CONSULTANT FOR AN ONSITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT TO OBTAIN A CERTIFICATE OF COMPLIANCE.
4. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED.
5. INSTALL STORM SEWER, IF SHOWN, AND PROTECT INLETS WITH BLOCK AND GRAVEL INLET CONTROLS.
6. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC.
7. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL ENVIRONMENTAL CONSULTANT FOR AN INSPECTION.
8. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC. AND SEED OUT OR STABILIZE ANY RESULTING BARB AREAS.
9. WHEN VEGETATION HAS BECOME ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT. OBTAIN A CERTIFICATE OF COMPLETION.

SEED BED PREPARATION:

- 1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS...
2. RIP THE ENTIRE AREA TO 6 INCH DEPTH.
3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPER-PHOSPHATE UNIFORMLY AND MIX WITH SOIL...
5. CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDBED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON...
9. CONSULT A CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

SEEDING AND MULCHING:

SEEDING AND MULCHING SHALL BE CARRIED OUT IMMEDIATELY BEHIND CONSTRUCTION IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:

SHOULDER, SIDE DITCHES, SLOPES (3:1 MAX)

Table with columns: DATE, TYPE, PLANTING/ACRE. Lists seeding schedules for various dates from AUG 15 - NOV 1 to NOV 1 - MAR 1, including mulch and fertilizer applications.

***TEMPORARY - RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12 INCHES IN HEIGHT BEFORE MOWING OTHERWISE FESCUE MAY BE SHADED OUT.

A CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE SHALL BE CONSULTED FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

GROUND STABILIZATION CHART. Table with columns: SITE AREA DESCRIPTION, STABILIZATION, TIMEFRAME EXCEPTIONS. Details stabilization times for dikes, swales, ditches, and various slopes.

MAINTENANCE PLAN:

- 1. ALL EROSION AND SEDIMENTATION CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK.
2. SEDIMENT WILL BE REMOVED FROM SEDIMENT TRAP DEVICES WHEN STORAGE CAPACITY HAS BEEN APPROXIMATELY 50% FILLED.
3. SEDIMENT WILL BE REMOVED FROM BEHIND THE SILT FENCE WHEN IT BECOMES APPROXIMATELY 6-INCHES DEEP AT THE FENCE.
4. INLET PROTECTION DEVICES SHALL BE INSPECTED AFTER EVERY RAINFALL EVENT.
5. ALL SEEDBED AREAS WILL BE FERTILIZED, RE-SEED AS NECESSARY, AND MULCHED ACCORDING TO THE SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.

SEEDING NON-WETLAND AREAS

A. TEMPORARY NON-WETLAND SEEDING

- 1. SEEDING SCHEDULE

TEMPORARY SEEDING OF NON-WETLAND AREAS. Table with columns: DATES, SEED MIXTURE SPECIES, APPLICATION RATE (LB/ACRE). Shows seeding dates for RYE GRAIN and GERMAN MILLET.

SOIL AMENDMENTS

- a. FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.
3. MULCH
a. APPLY 4,000 LB/ACRE STRAW, ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL.
4. MAINTENANCE
J) REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE.
5. THE SUBGRADE OF ALL AREAS TO BE SEEDD SHALL BE RAKED AND ALL RUBBISH, STICKS, ROOTS, AND STONES LARGER THAN 2 INCHES SHALL BE REMOVED.
6. APPLY GROUND AGRICULTURAL LIMESTONE AT A RATE OF 3,000 - 4,000 LB/ACRE.
7. PERMANENT SEEDING
a. IMMEDIATELY FOLLOWING THIS PREPARATION, PERMANENT SEED SHALL BE UNIFORMLY APPLIED AND LIGHTLY RAKED INTO THE SURFACE.

PERMANENT SEEDING OF NON-WETLAND AREAS. Table with columns: DATES, SEED MIXTURE SPECIES, APPLICATION RATE (LB/ACRE). Shows permanent seeding for BERMUDA GRASS and TALL FESCUE.

- b. THE BEST SEEDING DATES ARE BETWEEN SEPTEMBER 1 THROUGH SEPTEMBER 30 AND FEBRUARY 15 THROUGH MARCH 20.
c. POSSIBLE SEEDING DATES ARE BETWEEN SEPTEMBER 1 THROUGH OCTOBER 31 AND FEBRUARY 15 THROUGH APRIL 30.
d. BETWEEN APRIL 15 AND AUGUST 15, ADD 10 LB/ACRE GERMAN MILLET OR 15 LB/ACRE OF SUDANGRASS.
e. PRIOR TO MAY 1 OR AFTER AUGUST 15 ADD 25 LB/ACRE RYE (GRAIN).
8. APPLY MULCH AT A RATE OF 4,000 LB/ACRE.
9. APPLY TACKIFIER AT A RATE OF 10 GAL/1,000FT2.
10. THE CONTRACTOR SHALL KEEP ALL SEEDBED AREAS WATERED AND IN GOOD CONDITION.
11. ON SLOPES, THE CONTRACTOR SHALL PROVIDE AGAINST WASHOUTS BY AN APPROVED METHOD.

SEEDING RIPARIAN BUFFER AREAS:

AREAS WITHIN THE 50' RIPARIAN BUFFER SHALL BE STABILIZED WITH NATIVE SEED MIX, MFM RIPARIAN BUFFER MIX FROM MELLOW MARSH FARM, INC. OR APPROVED EQUAL.

Table with columns: SPECIES, COMMON NAME, PERCENT. Lists recommended species like AGROSTIS HYEMALIS, AGROSTIS PERENNANS, ANDROPOGON GERARDII, etc., and their application rates.

MAINTENANCE REQUIREMENTS:

- 1. MANY OF THE RECOMMENDED PERMANENT GRASS SPECIES MAY REQUIRE TWO YEARS OF ESTABLISHMENT. DEPENDING ON SITE CONDITIONS, INSPECT SEEDBED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS, SOIL AMENDMENTS, AND RESEEDINGS.
2. THE SUBGRADE OF ALL AREAS TO BE SEEDD SHALL BE RAKED AND ALL RUBBISH, STICKS, ROOTS, AND STONES LARGER THAN 2 INCHES SHALL BE REMOVED.

TOPSOIL WASTE NOTE:

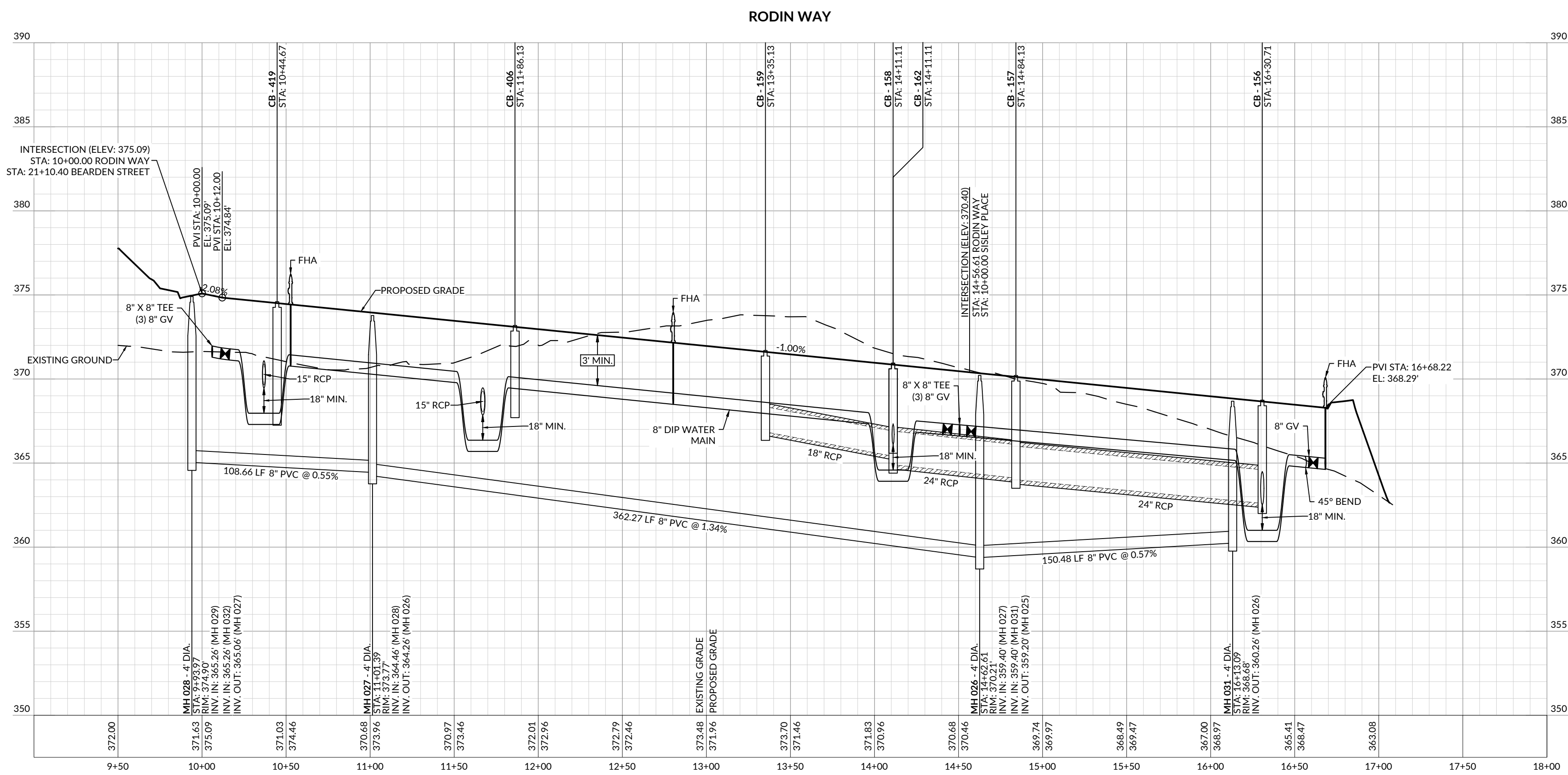
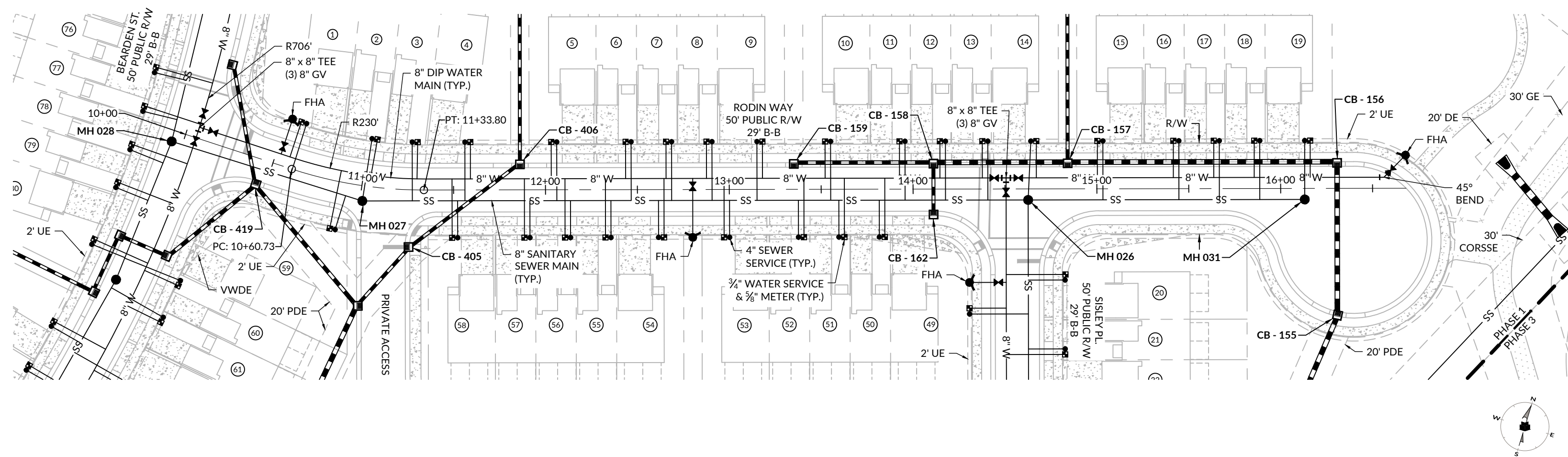
- 1. EXCESS TOPSOIL/MATERIAL SHALL BE HAULLED OFFSITE UNLESS OTHERWISE DIRECTED BY THE OWNER'S REPRESENTATIVE. IF OWNER DECIDES TO KEEP EXCESS TOPSOIL/MATERIAL ON SITE, COORDINATION WITH OWNER'S REPRESENTATIVE AND TOWN OF WAKE COUNTY EROSION CONTROL STAFF WILL TAKE PLACE BEFORE EXCESS TOPSOIL/MATERIAL IS PLACED.

CHANNEL DESIGN INFORMATION. Large table with columns: CHANNEL ID, DRAINAGE AREA (AC), WEIGHTED 'C' COEFFICIENT, CHANNEL FLOW (CFS), CHANNEL SLOPE (%), CHANNEL FLOW DEPTH (FT), CHANNEL MINIMUM DEPTH (FT), CHANNEL BOTTOM WIDTH (FT), CHANNEL SIDE SLOPES, CHANNEL VELOCITY (FPS), ALLOWABLE VELOCITY (FPS), CHANNEL SHEAR STRESS (PSF), ALLOWABLE SHEAR STRESS (PSF), DITCH LINING.

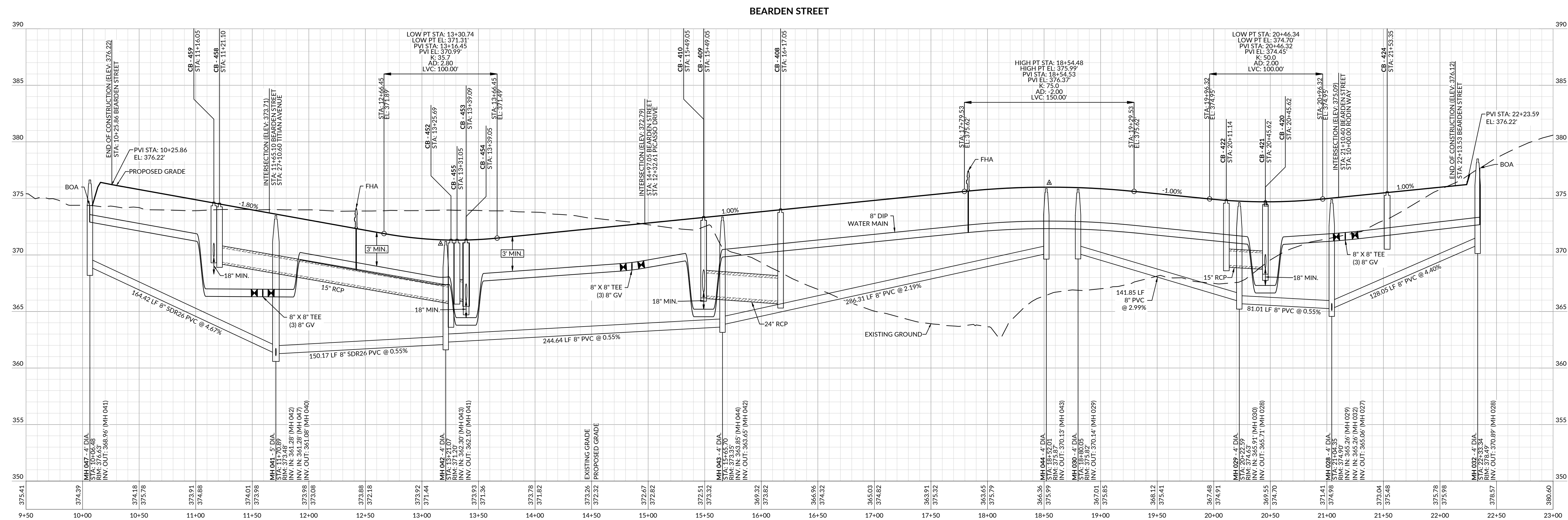
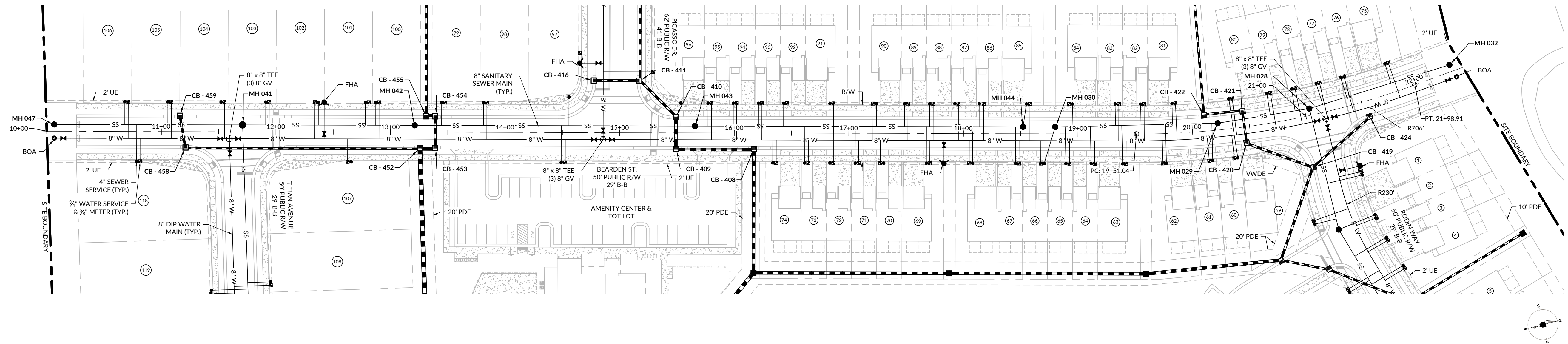
Slope Drain Summary. Table with columns: Slope Drain ID, Drainage Area (ac), Pipe Diameter (in). Lists drainage details for various slope drains.

TEMPORARY SKIMMER BASIN AND ORIFICE DESIGN SUMMARY. Table with columns: BASIN, TYPE, DRAINAGE AREA, DISTURBED AREA, C VALUE, PEAK FLOW, DEPTH, LENGTH, WIDTH, WEIR LENGTH, VOLUME REQUIRED, VOLUME PROVIDED, SURFACE AREA REQUIRED, SURFACE AREA PROVIDED, SKIMMER SIZE, ORIFICE SIZE, Dewatering Time.

- ABBREVIATIONS LEGEND:
CTD - CLEAN WATER TEMPORARY DITCH
RTD - RISER BASIN TEMPORARY DITCH
STD - SKIMMER BASIN TEMPORARY DITCH
TD - TEMPORARY DITCH
NOTES: 12" FREEBOARD PROVIDED RAINFALL INTENSITY (10-YEAR): 7.20 IN/HR



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CONSTRUCTION INFRASTRUCTURE DRAWINGS
**BROADMOOR
 CID-24-06**

ROLESVILLE ROAD | ROLESVILLE, NC 27587 | WAKE COUNTY



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SCALE: 1 inch = 50 ft. H
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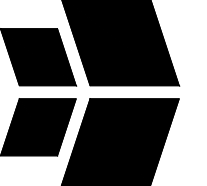
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**BEARDEN STREET
 PLAN & PROFILE**

C8.03



1225 CRESCENT GREEN DRIVE,
 SUITE 200
 CARY, NC 27518

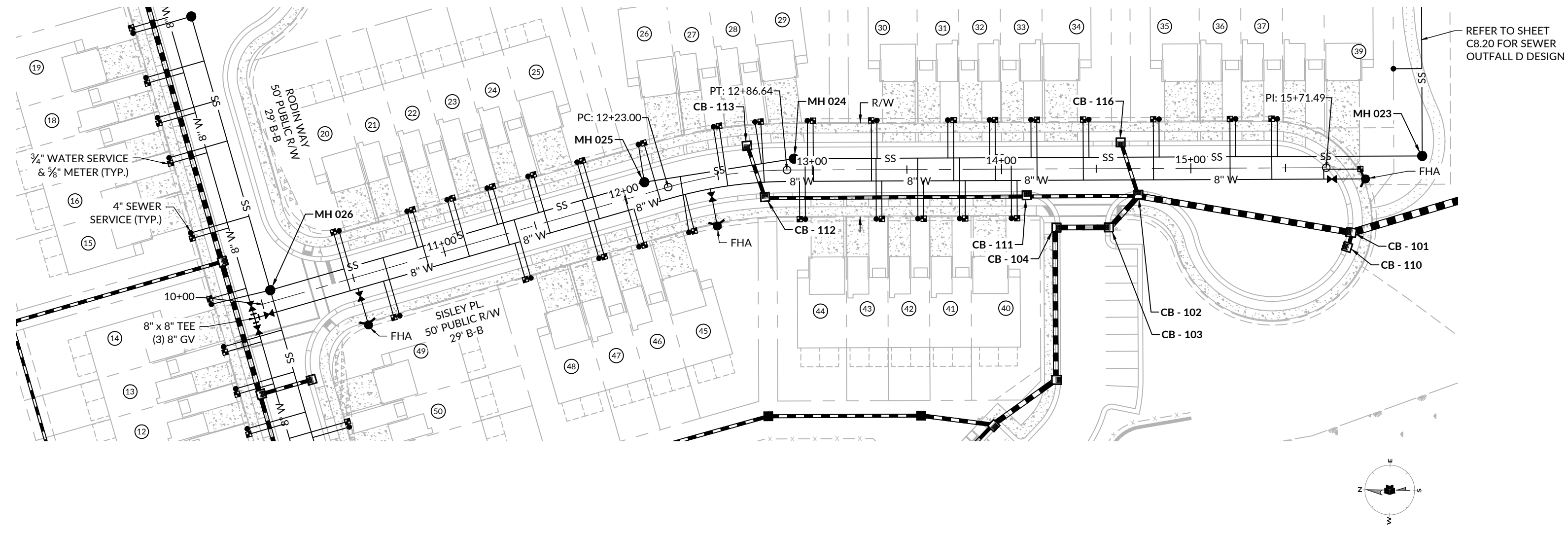
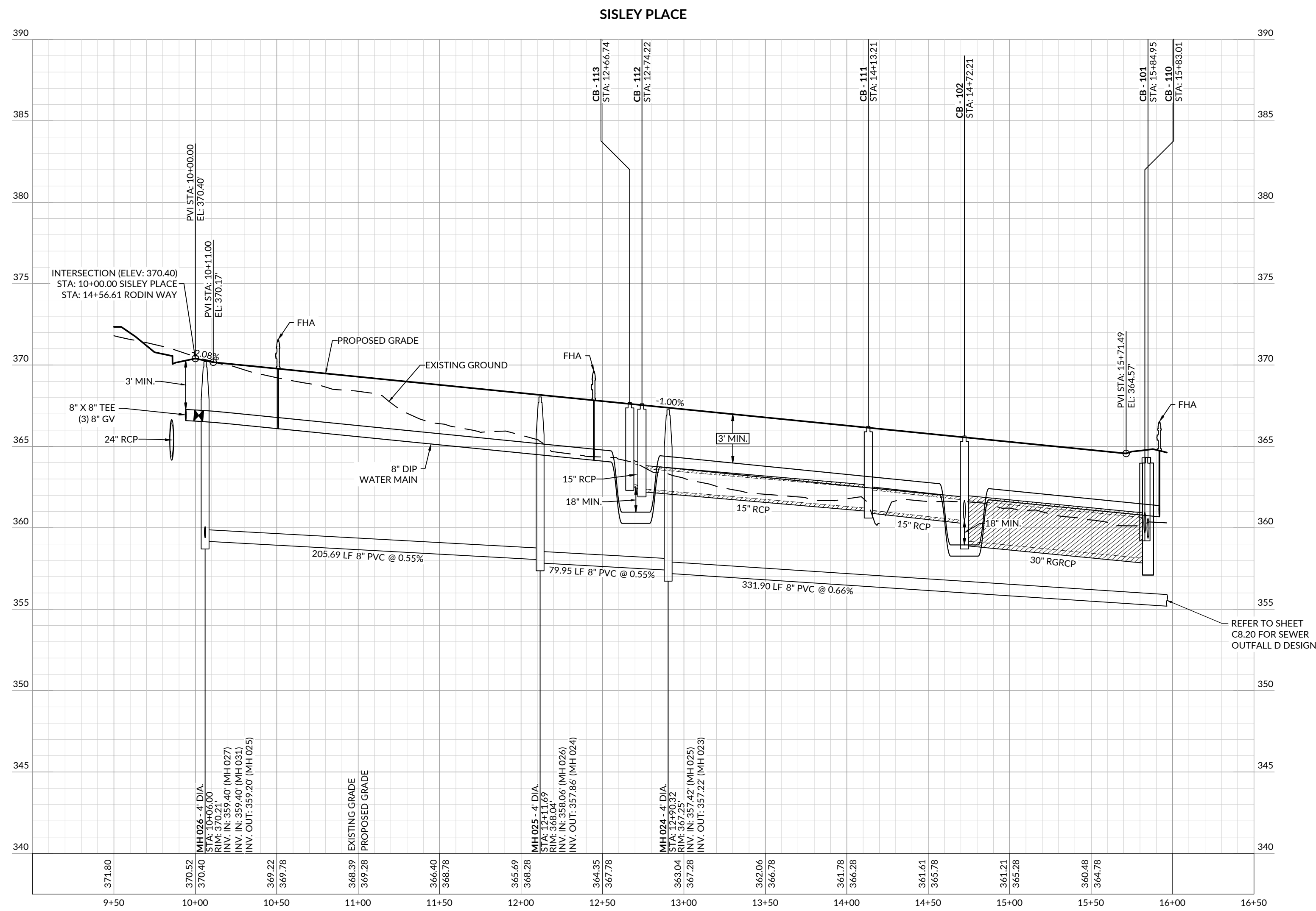


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SISLEY PLACE PLAN & PROFILE

WR JOB NUMBER 23-0045
DRN: WR DGN: WR CKD: WR

INITIAL PLAN DATE: 11/01/2024
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REVISED PER REVIEW COMMENTS

SCALE: 1 inch = 50 ft, H
1 inch = 5 ft, V

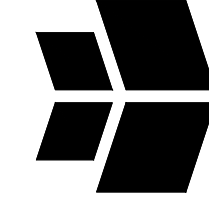


CONSTRUCTION INFRASTRUCTURE DRAWINGS
BROADMOOR
CID-24-06

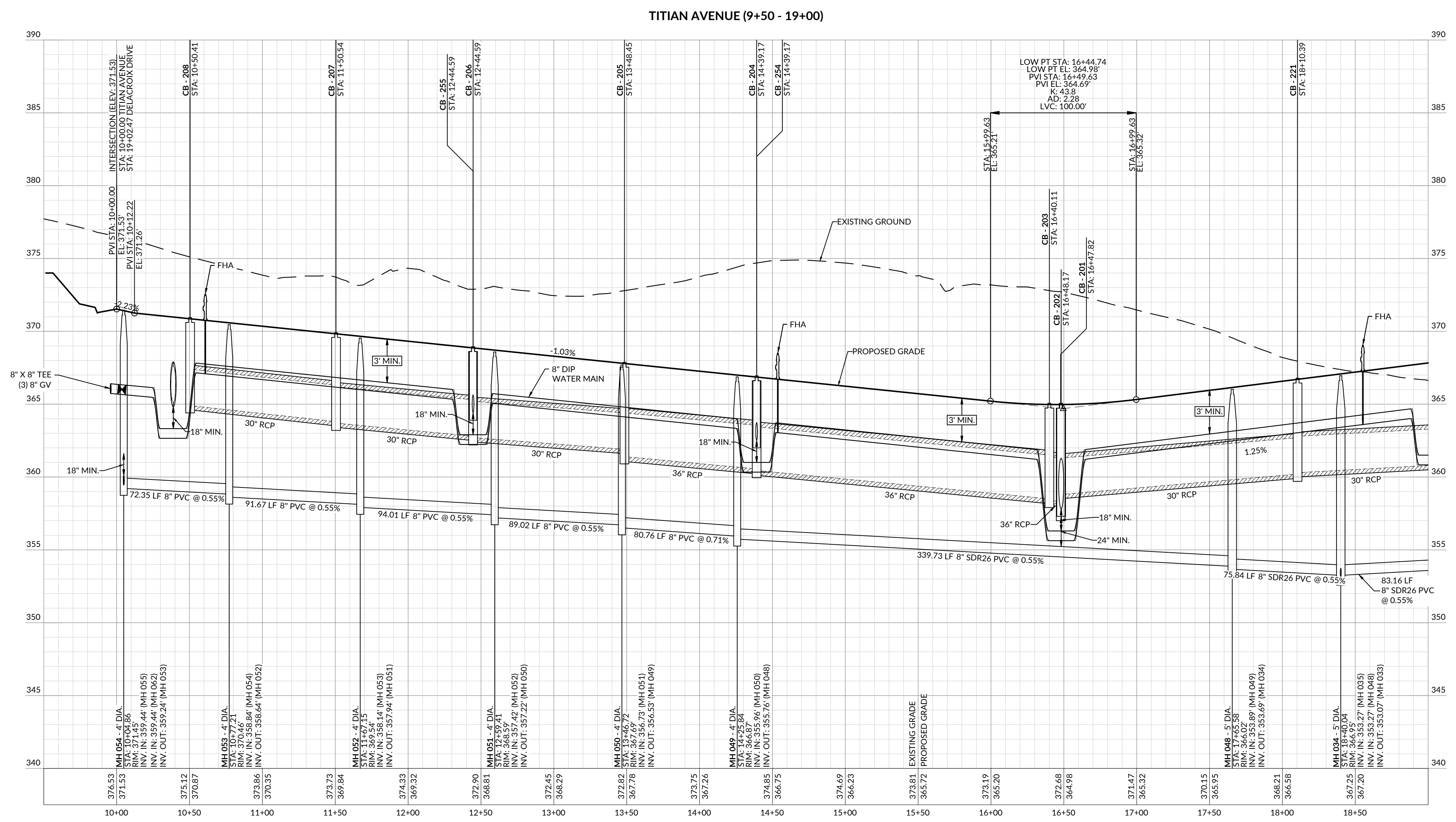
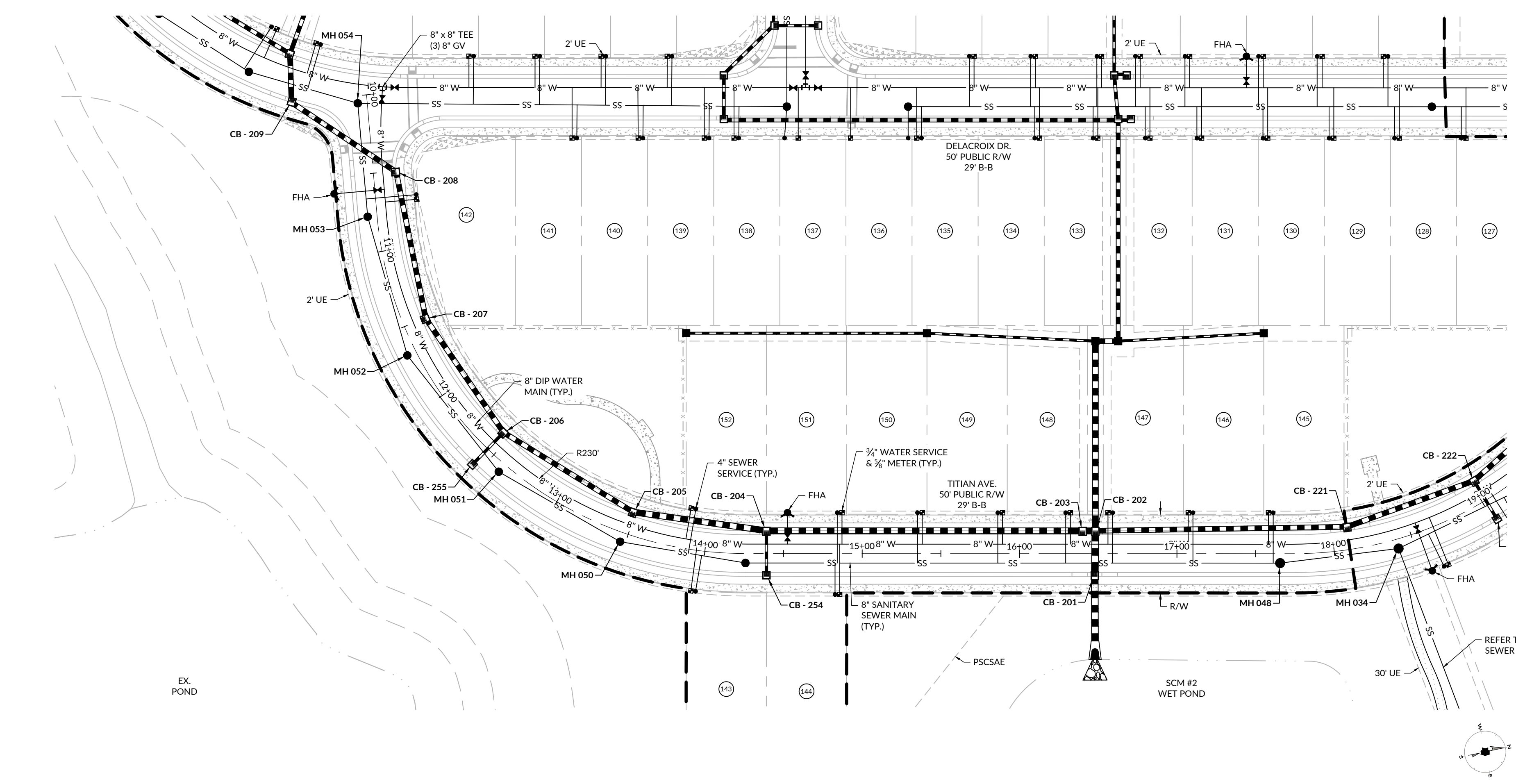
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1225 CRESCENT GREEN DRIVE,
SUITE 200
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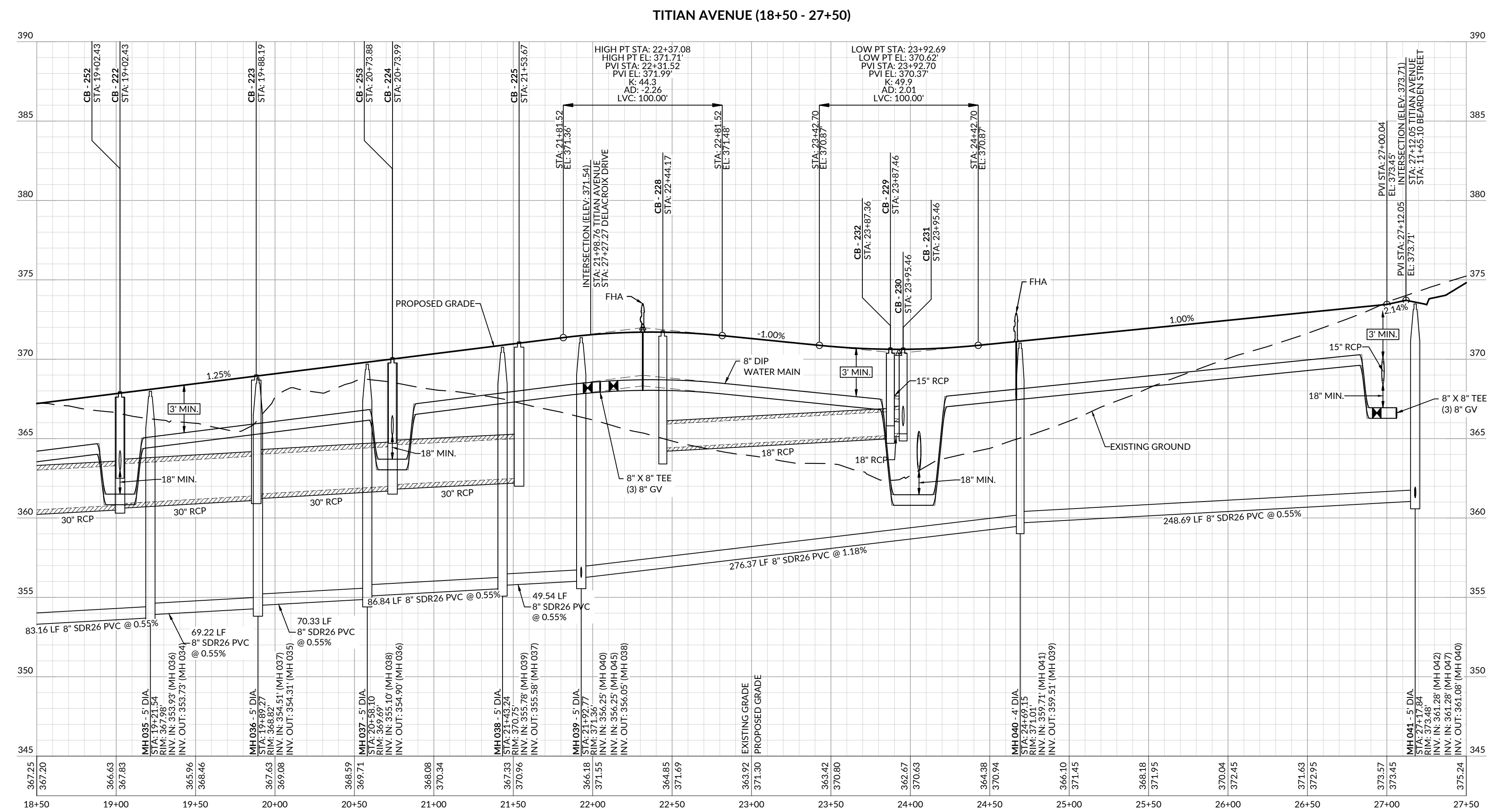
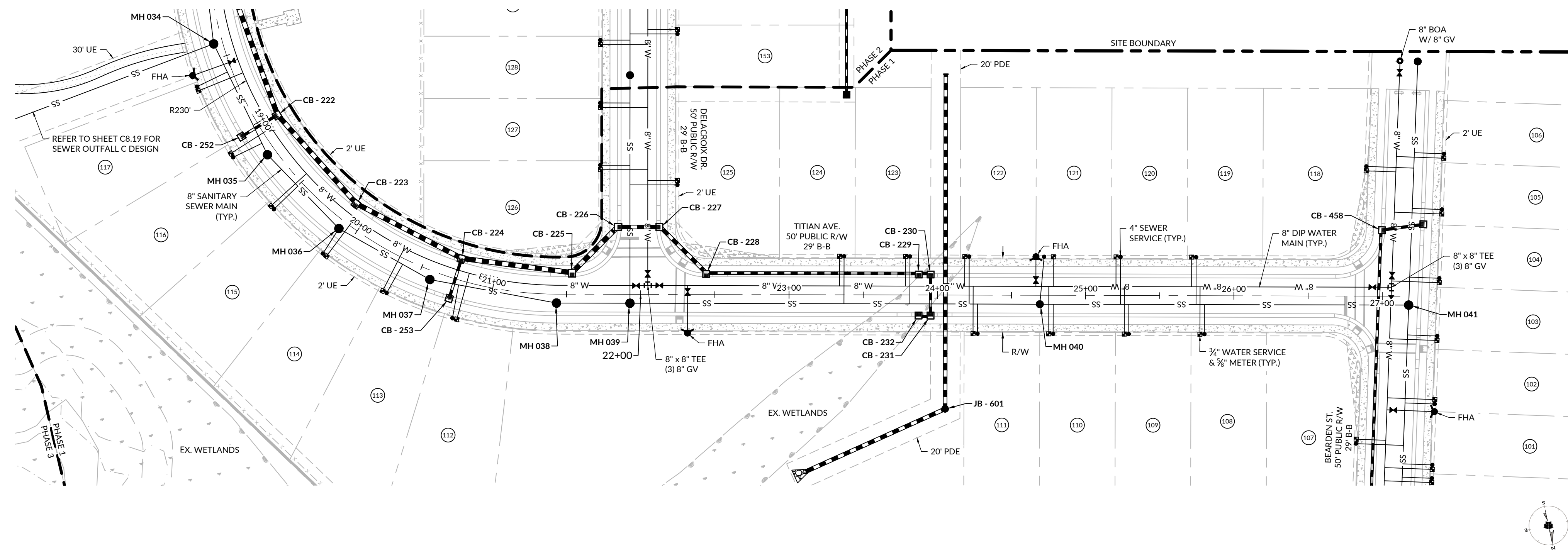
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INITIAL PLAN DATE: 11/01/2024
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TITIAN AVENUE
PLAN & PROFILE
(9+50 - 19+00)

C8.05



CONSTRUCTION INFRASTRUCTURE DRAWINGS
BROADMOOR
CID-24-06



SCALE: 1" = 50' H, 1" = 5' V

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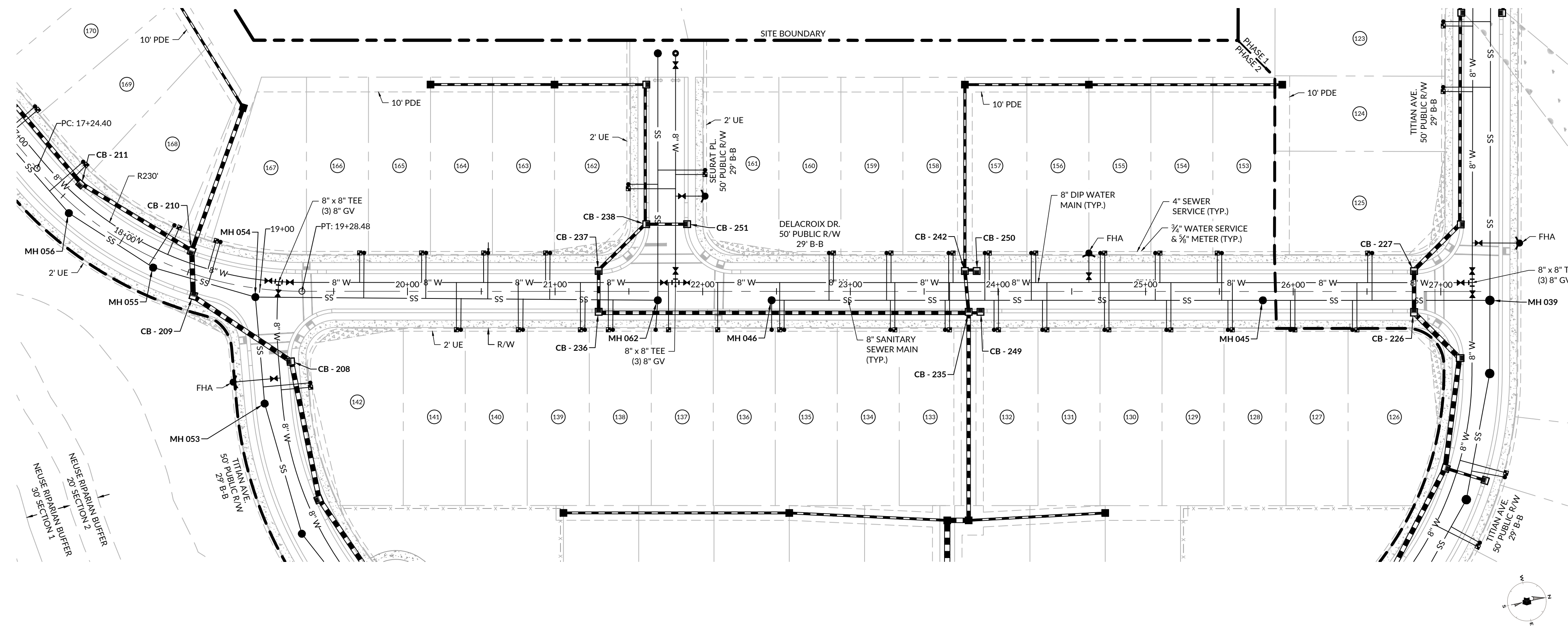
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PLAN & PROFILE
(18+50 - 27+50)

C8.06

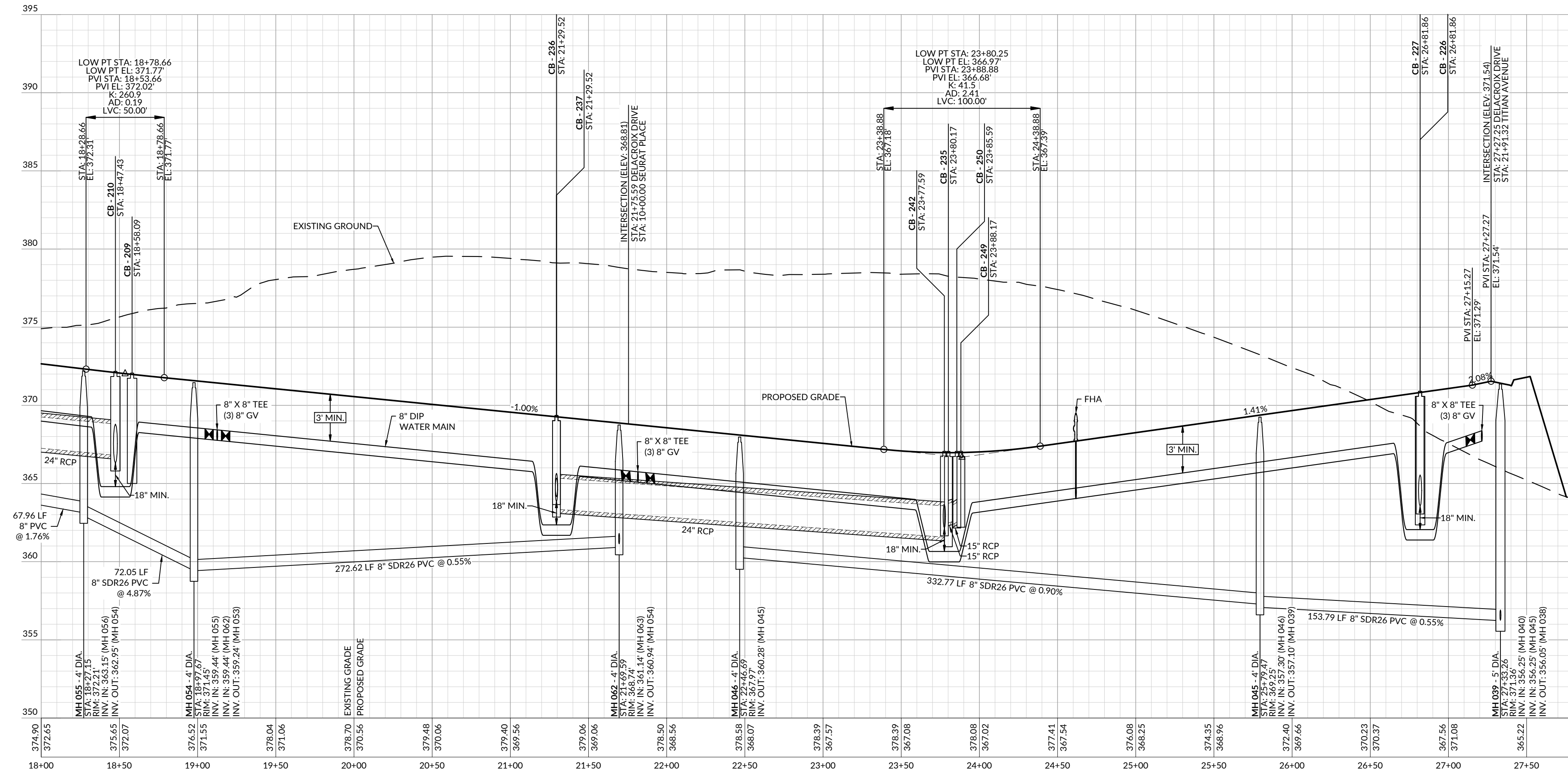


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DELACROIX DRIVE (18+00 - 27+50)



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CONSTRUCTION INFRASTRUCTURE DRAWINGS
BROADMOOR
CID-24-06



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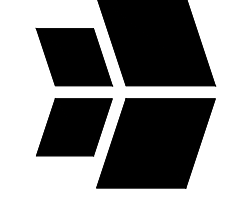
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WR JOB NUMBER 23-0045
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DELACROIX DRIVE
PLAN & PROFILE
(18+50 - 27+50)

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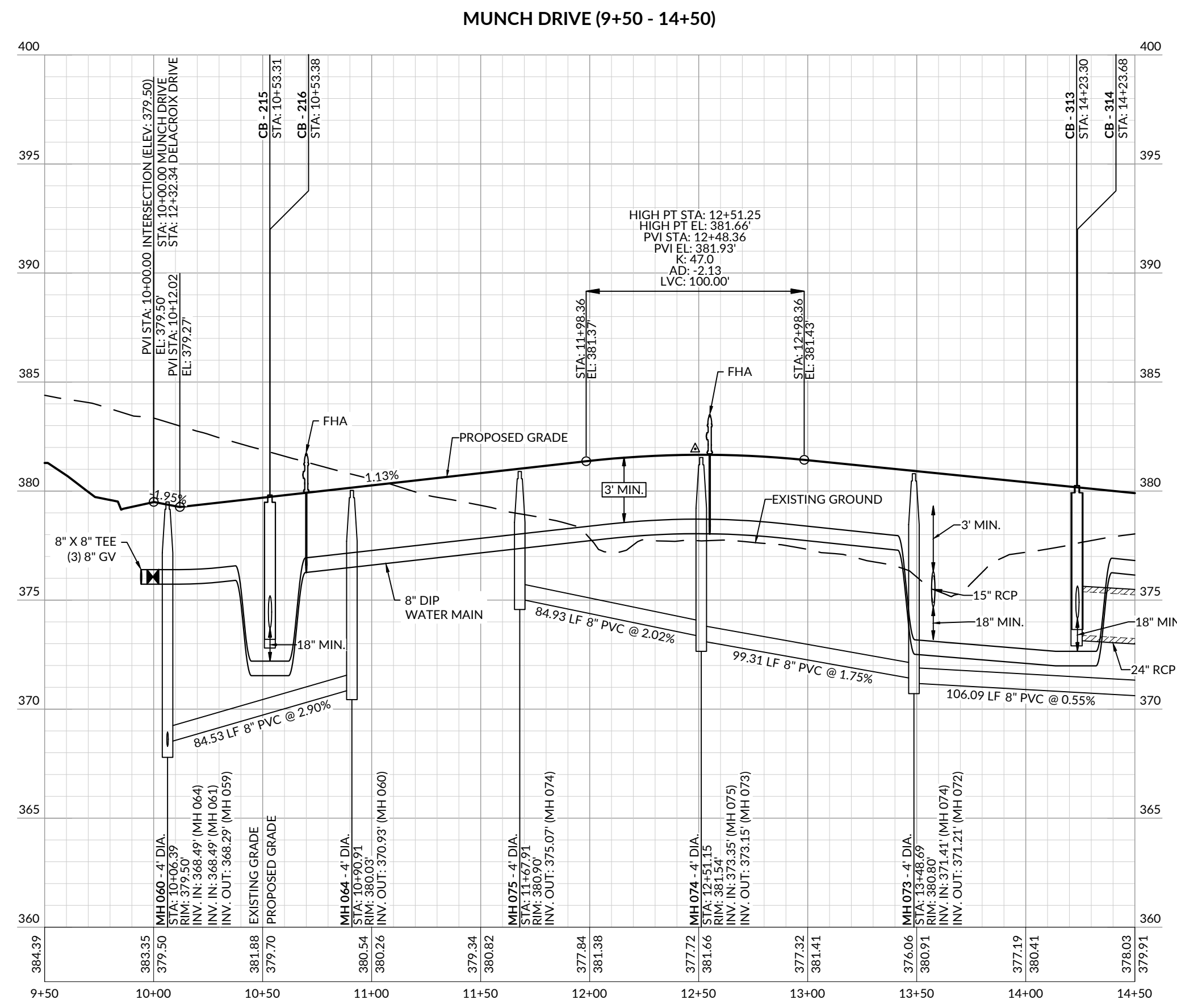
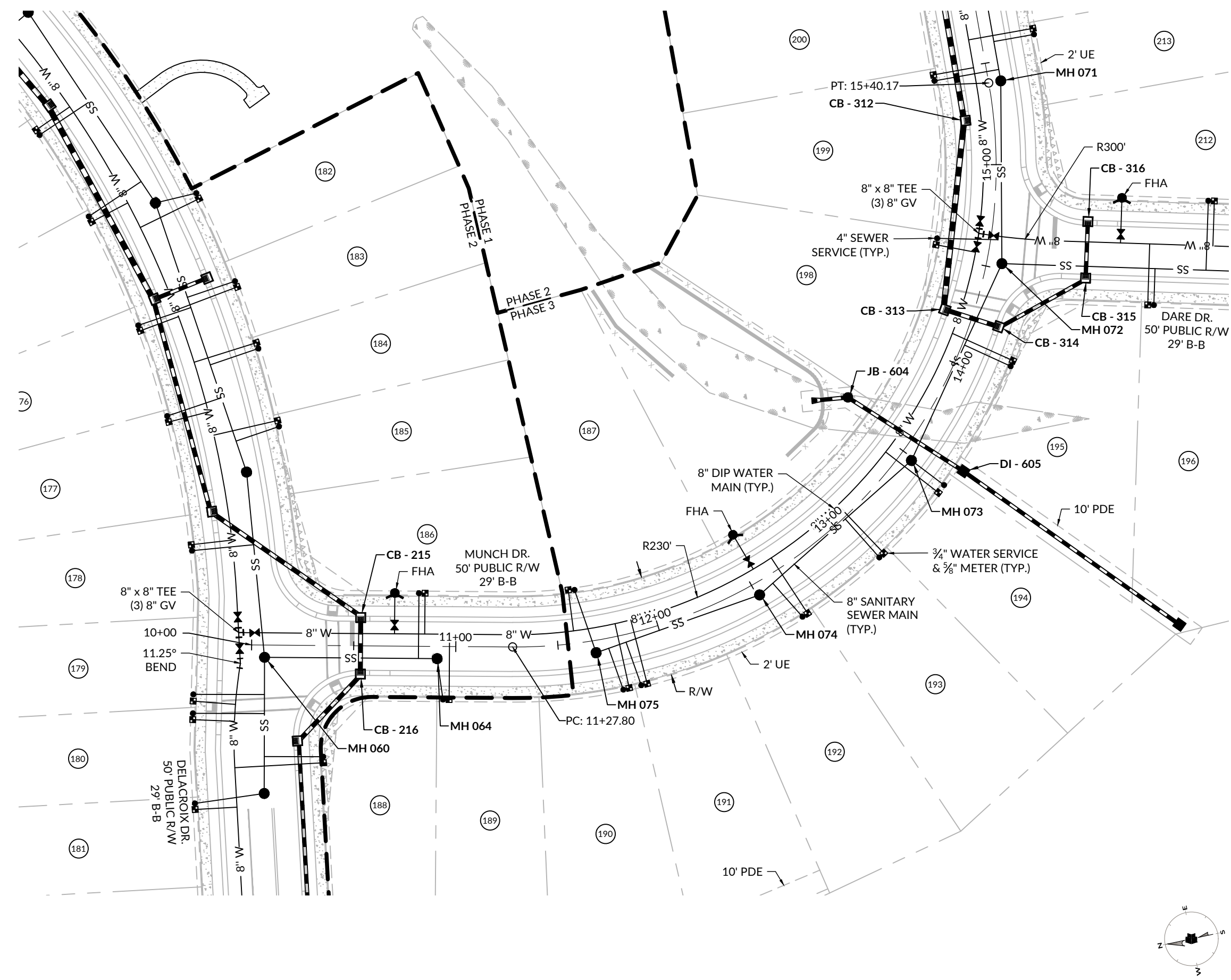


1225 CRESCENT GREEN DRIVE,
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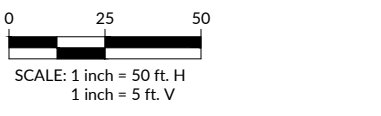
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1225 CRESCENT GREEN DRIVE, SUITE 200, CARY, NC 27518

CONSTRUCTION INFRASTRUCTURE DRAWINGS
BROADMOOR
CID-24-06

ROLESVILLE ROAD | ROLESVILLE, NC 27587 | WAKE COUNTY



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MUNCH DRIVE
PLAN & PROFILE
(9+50 - 14+50)

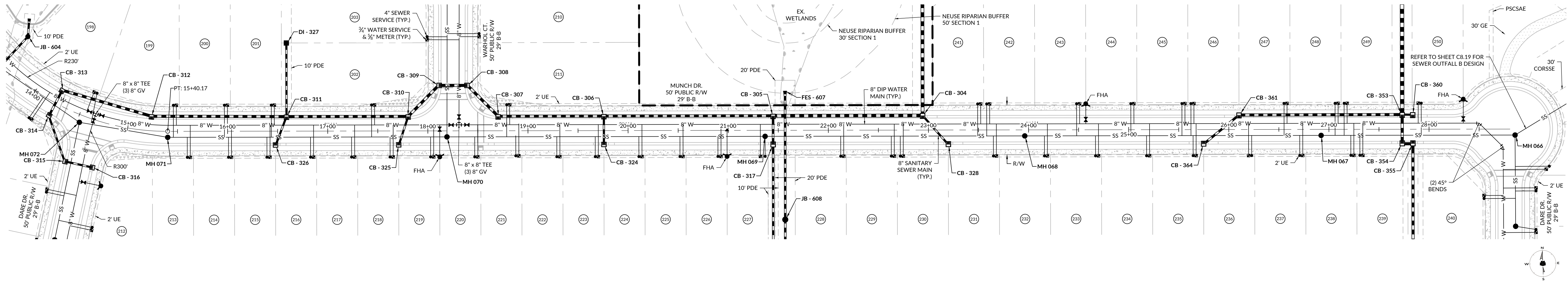
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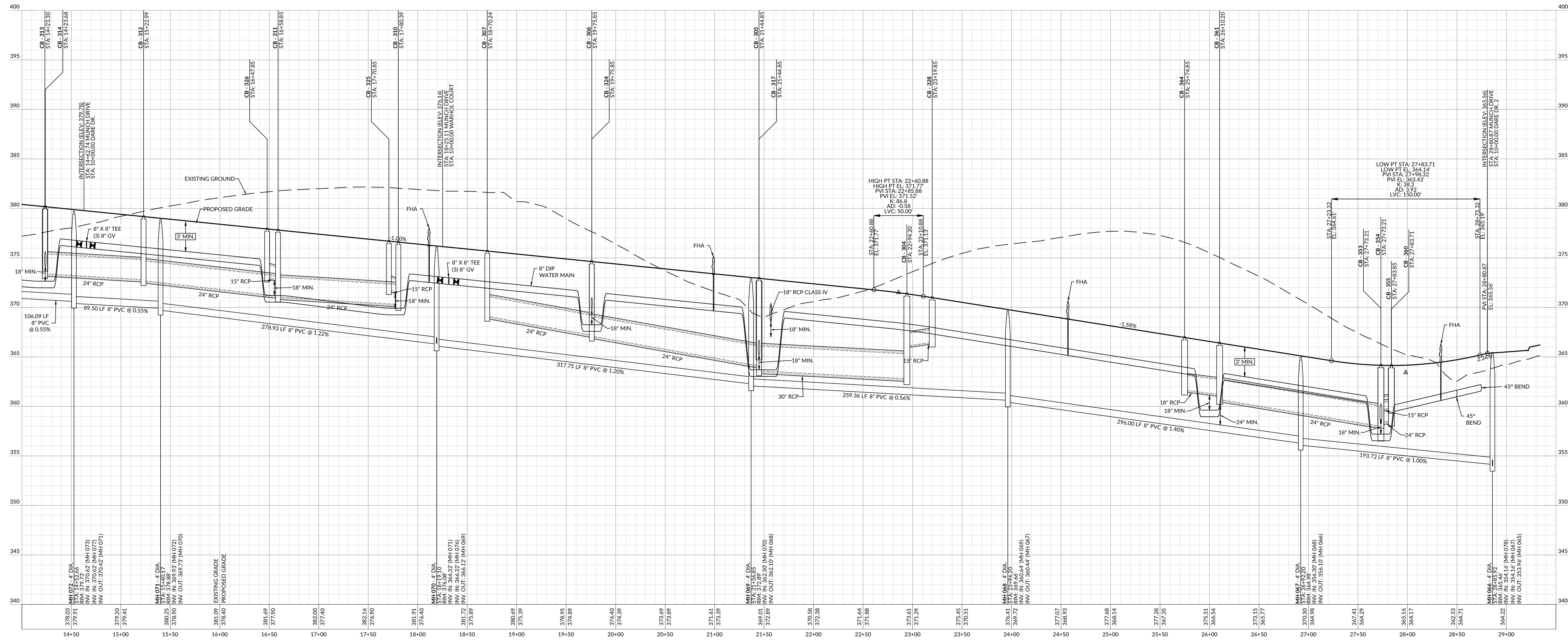
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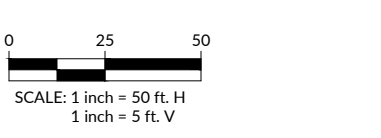


MUNCH DRIVE (14+00-29+00)



CONSTRUCTION INFRASTRUCTURE DRAWINGS
**BROADMOOR
 CID-24-06**

PRELIMINARY
 NOT APPROVED FOR
 CONSTRUCTION

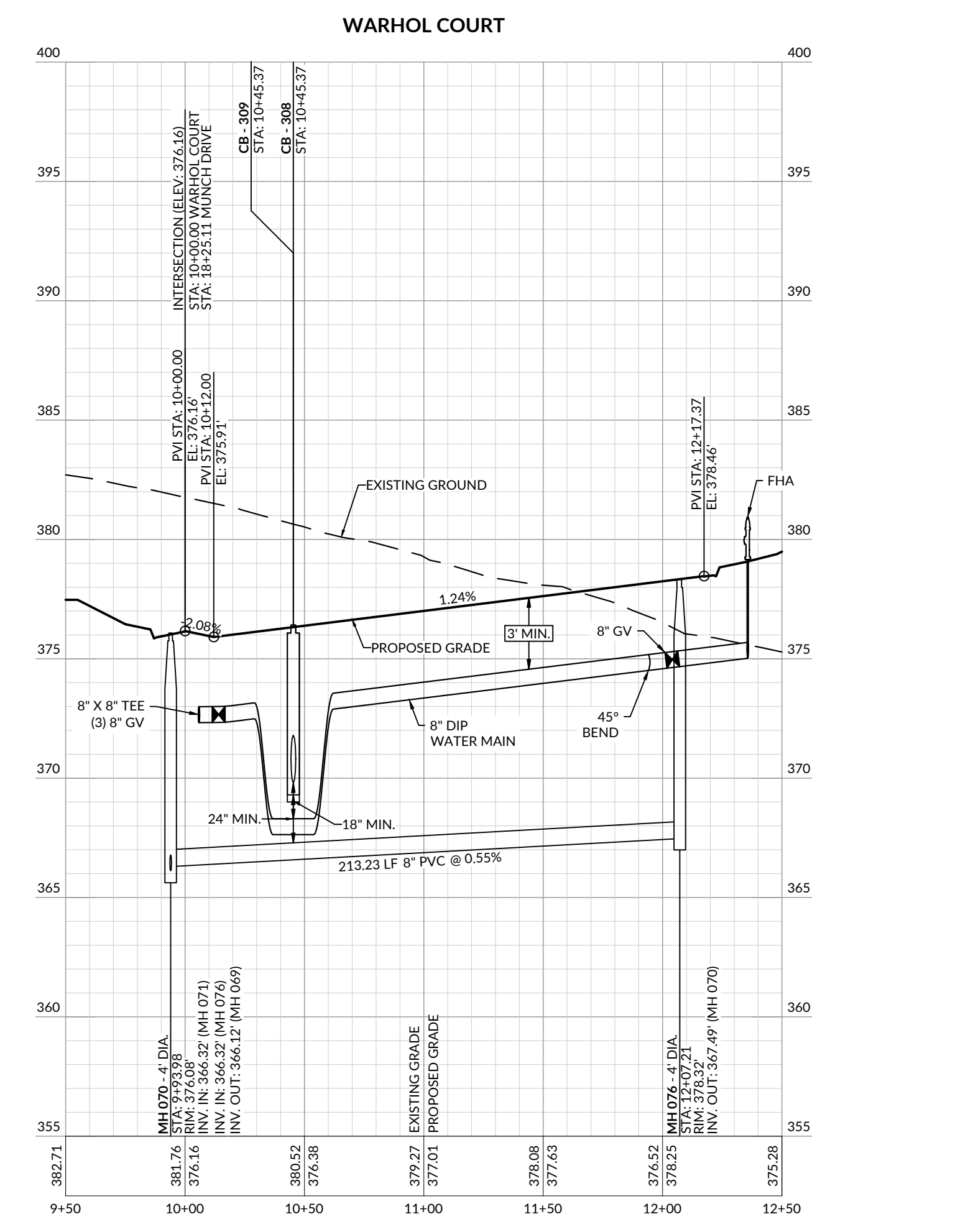
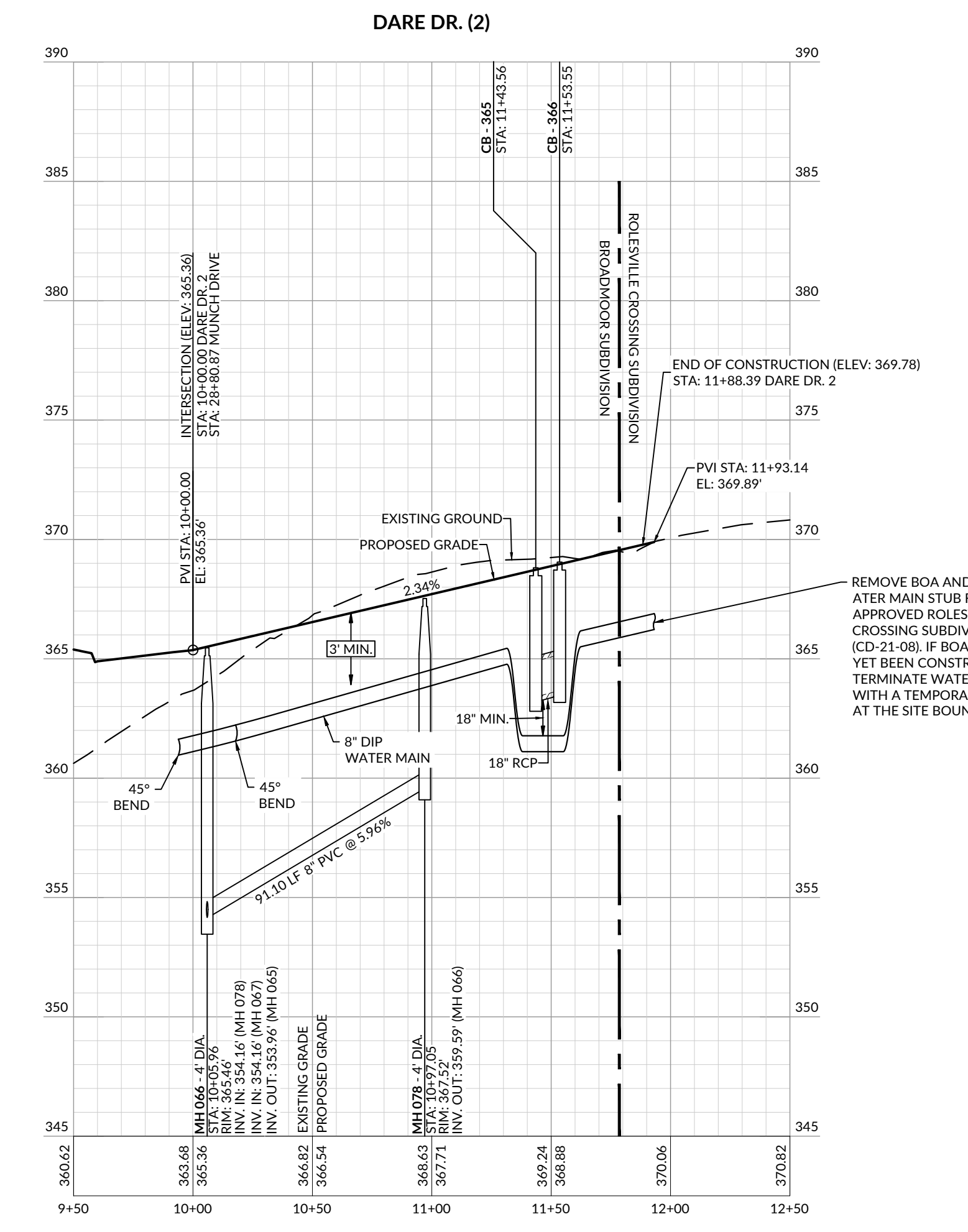
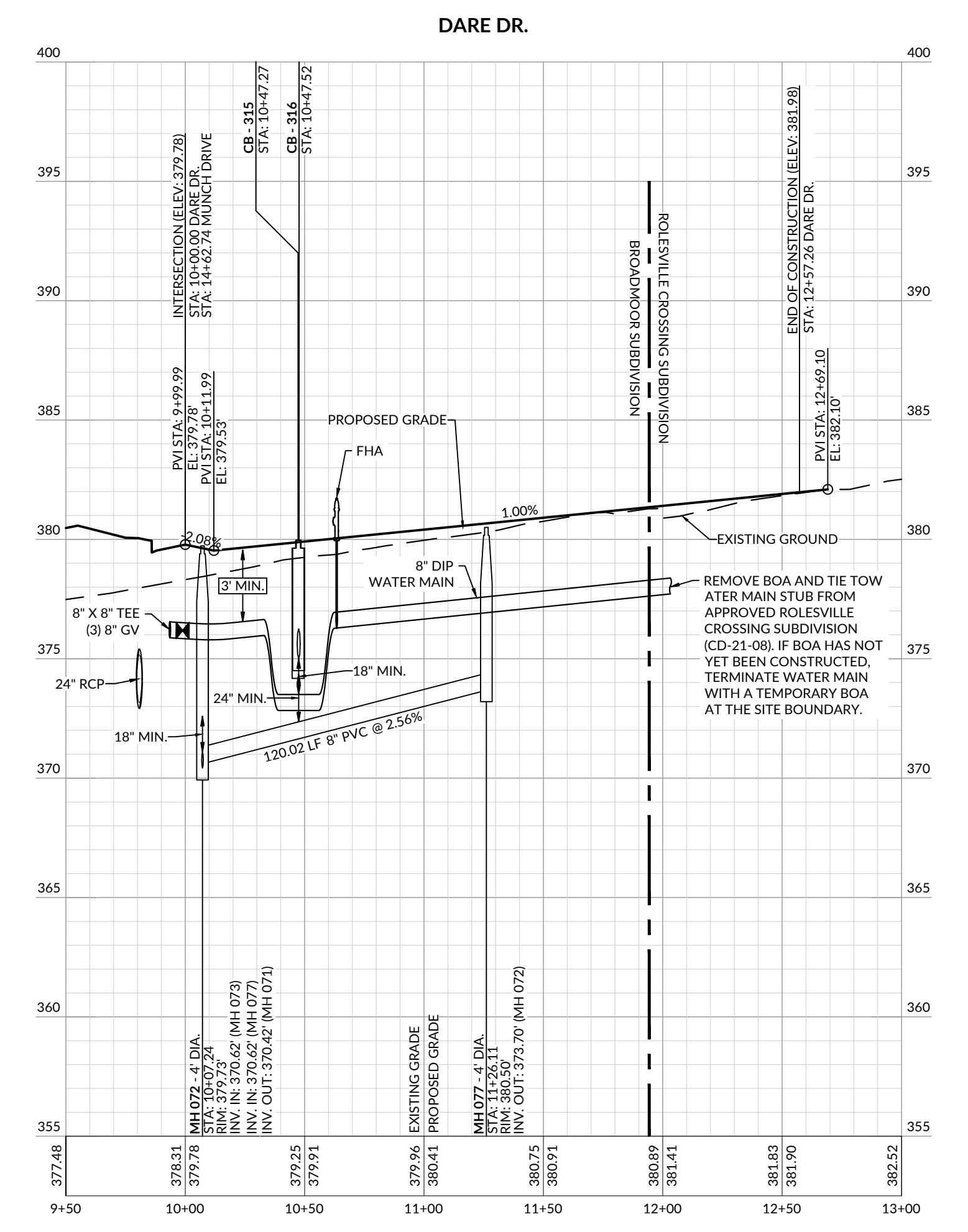
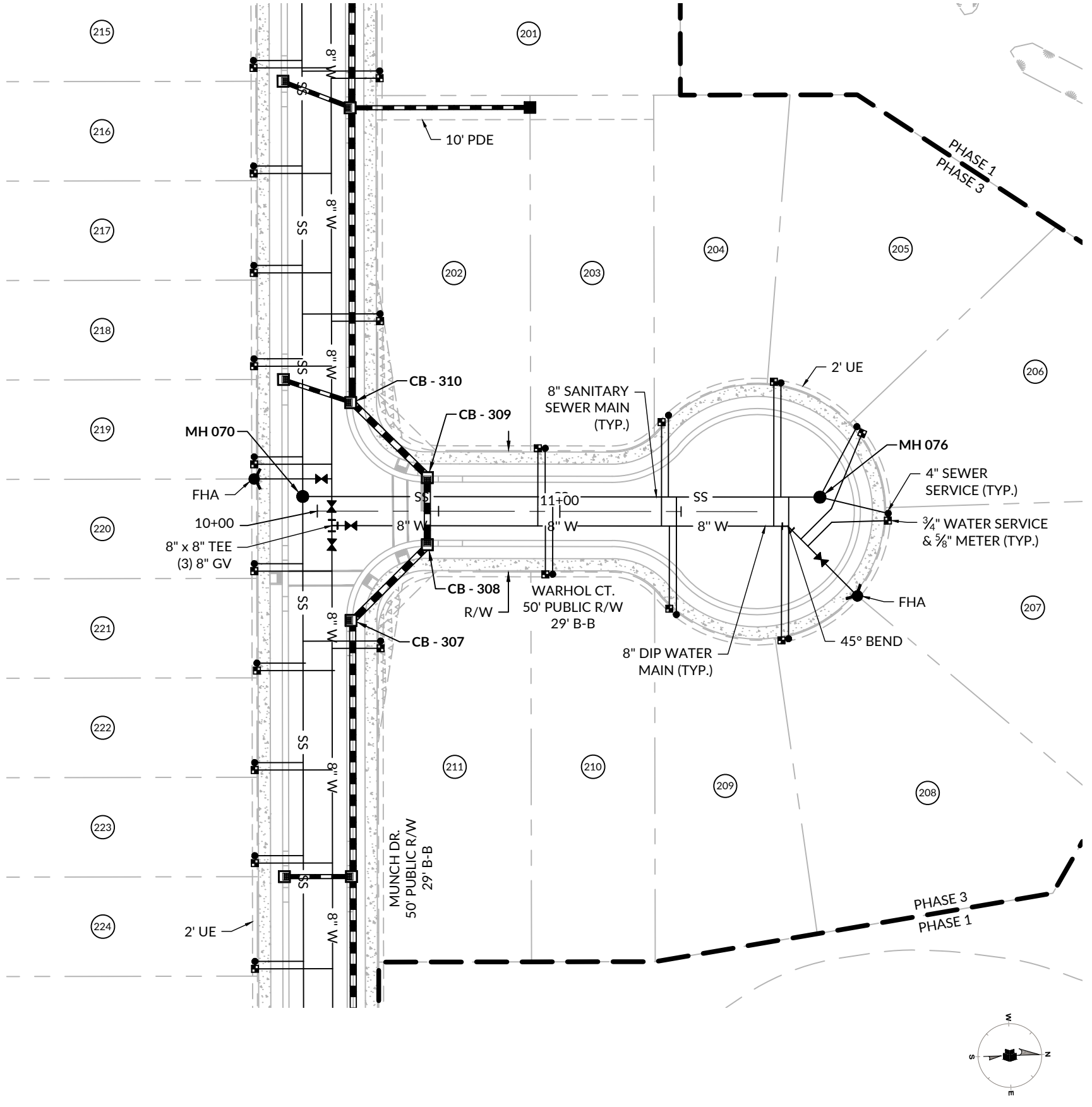
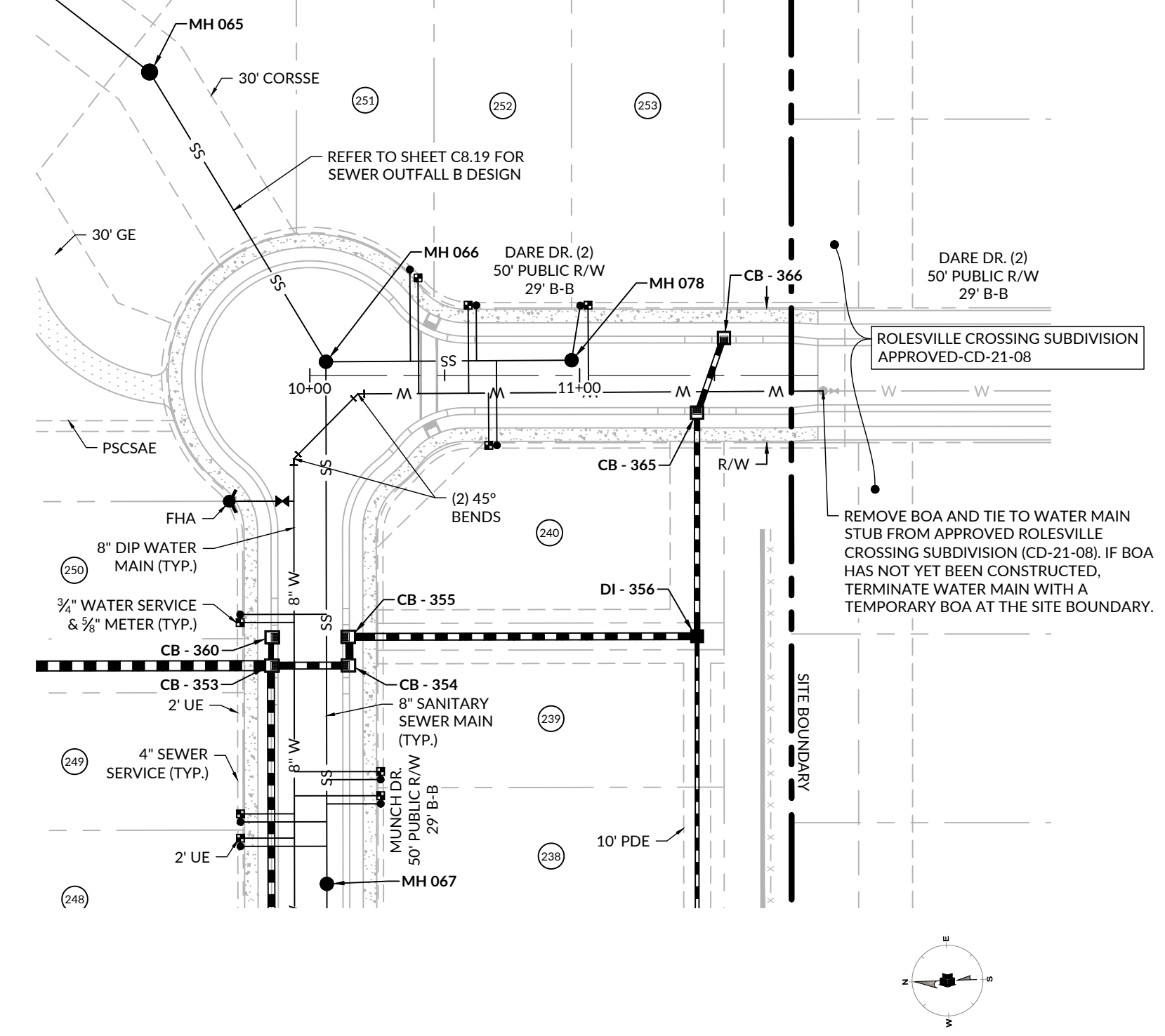
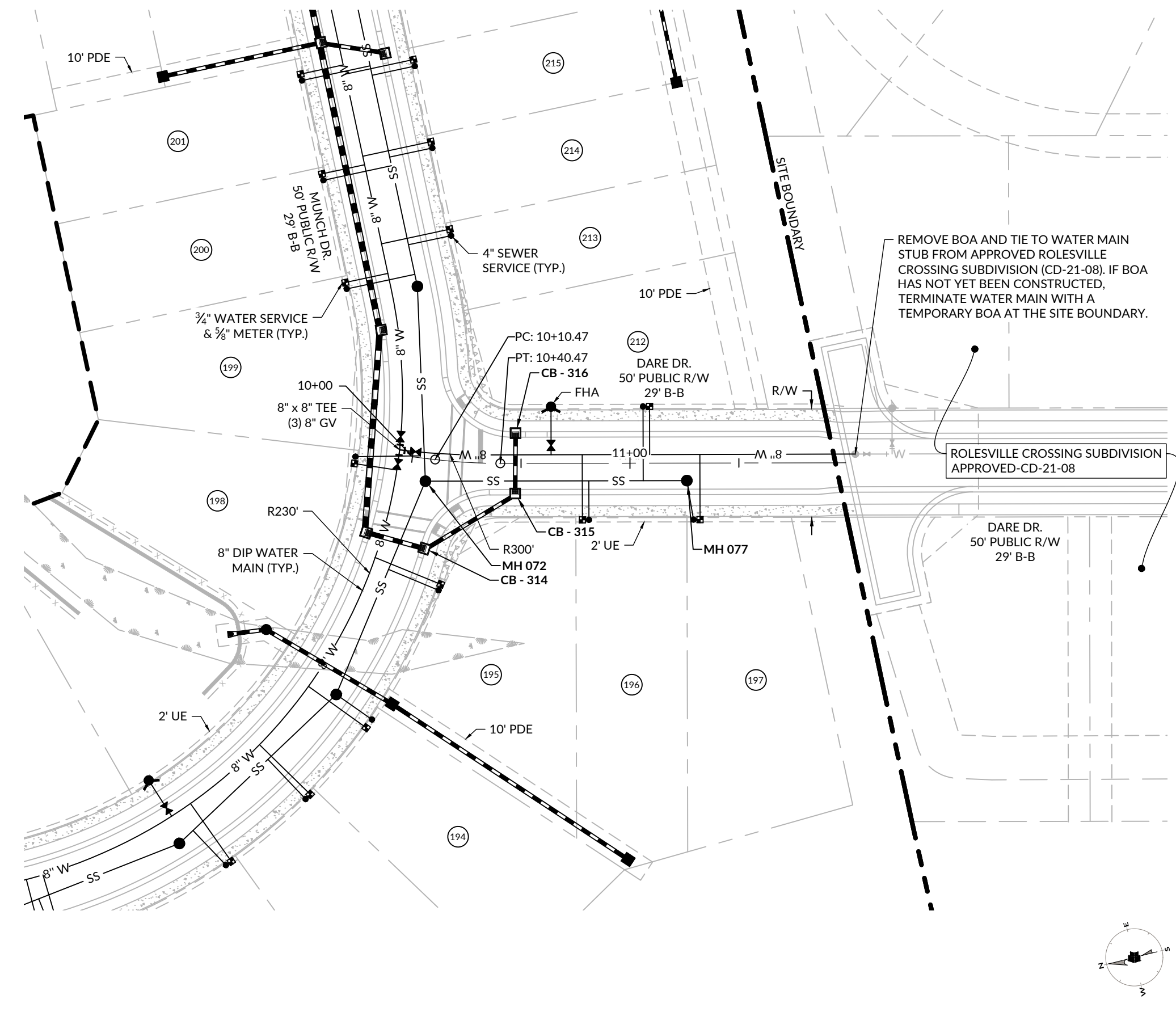


INITIAL PLAN DATE: 11/01/2024
 REVISIONS:
 1 - 01/02/2025
 REVISED PER REVIEW COMMENTS

WR JOB NUMBER: 23-0045
 DRN-WR DGN-WR CKD-WR
**MUNCH DRIVE
 PLAN & PROFILE
 (14+50 - 29+50)**

C8.10

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J:\2024\Bldg_WithersRavenel\Assemblies\CDD\Drawings\SiteConstruction\CID-24-06\11 DARE DRIVE & WARHOL COURT PLAN & PROFILE.dwg Thursday, January 2, 2025 3:18:25 PM TCCOR

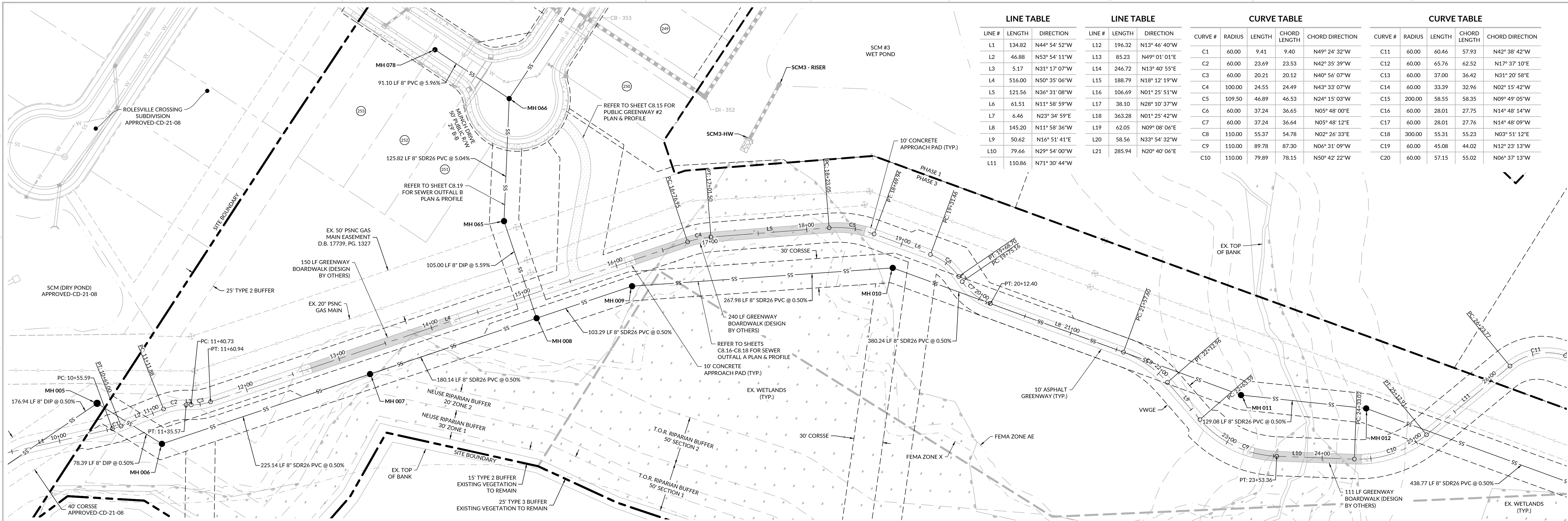


SCALE: 1" = 50' H.
 1" = 5' V.

INITIAL PLAN DATE: 11/01/2024
 REVISIONS:
 1 - 01/02/2025
 REVISED PER REVIEW COMMENTS

WR JOB NUMBER: 23-0045
 DRN-DWG: DGN-WR CKD-WR
DARE DRIVE & WARHOL COURT
PLAN & PROFILE

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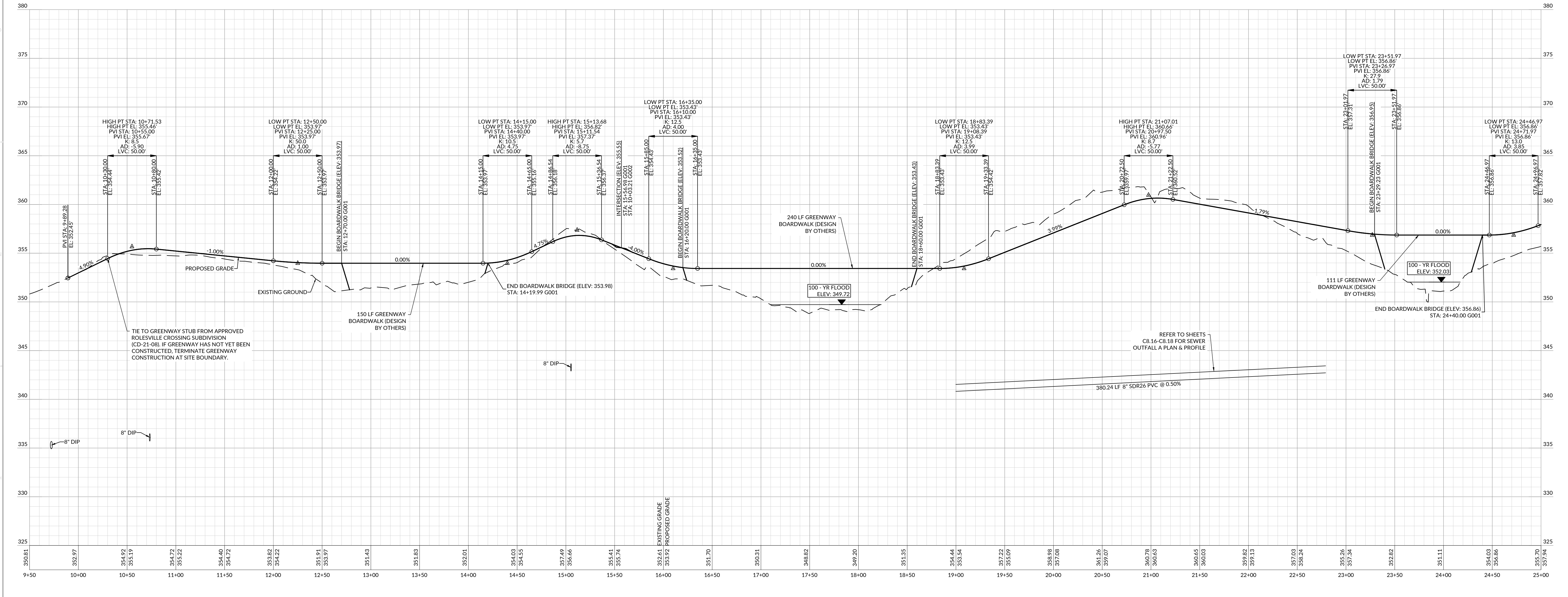
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L1	134.82	N44° 54' 52\"/>

LINE #	LENGTH	DIRECTION
L12	196.32	N13° 46' 40\"/>

CURVE #	RADIUS	LENGTH	CHORD LENGTH	CHORD DIRECTION
C1	60.00	9.41	9.40	N49° 24' 32\"/>

CURVE #	RADIUS	LENGTH	CHORD LENGTH	CHORD DIRECTION
C11	60.00	60.46	57.93	N42° 38' 42\"/>

GREENWAY 1 (10+00 - 25+00)



CONSTRUCTION INFRASTRUCTURE DRAWINGS

BROADMOOR
CID-24-06

ROLESVILLE ROAD | ROLESVILLE, NC 27587 | WAKE COUNTY

1225 CRESCENT GREEN DRIVE, SUITE 250, CARY, NC 27513

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SCALE: 1 inch = 50 ft. H
1 inch = 5 ft. V

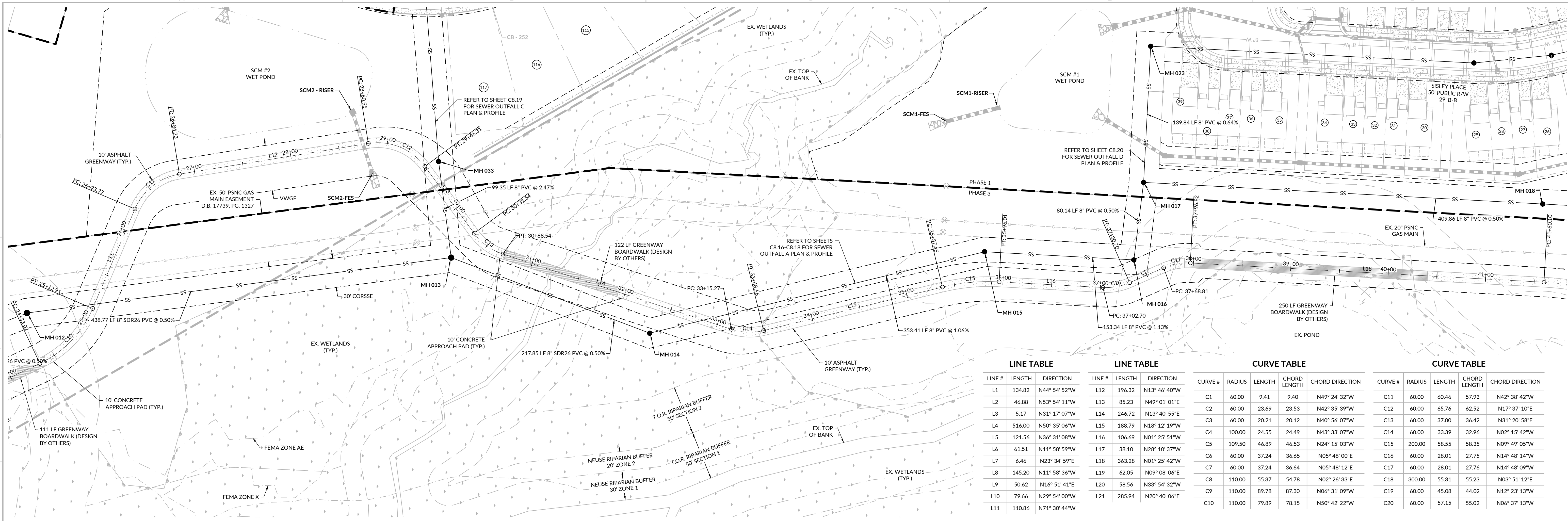
INITIAL PLAN DATE: 11/01/2024

REVISIONS:
1 - 01/02/2025
REVISED PER REVIEW COMMENTS

WR JOB NUMBER: 23-0045
DRN: WR DGN: WR CKD: WR

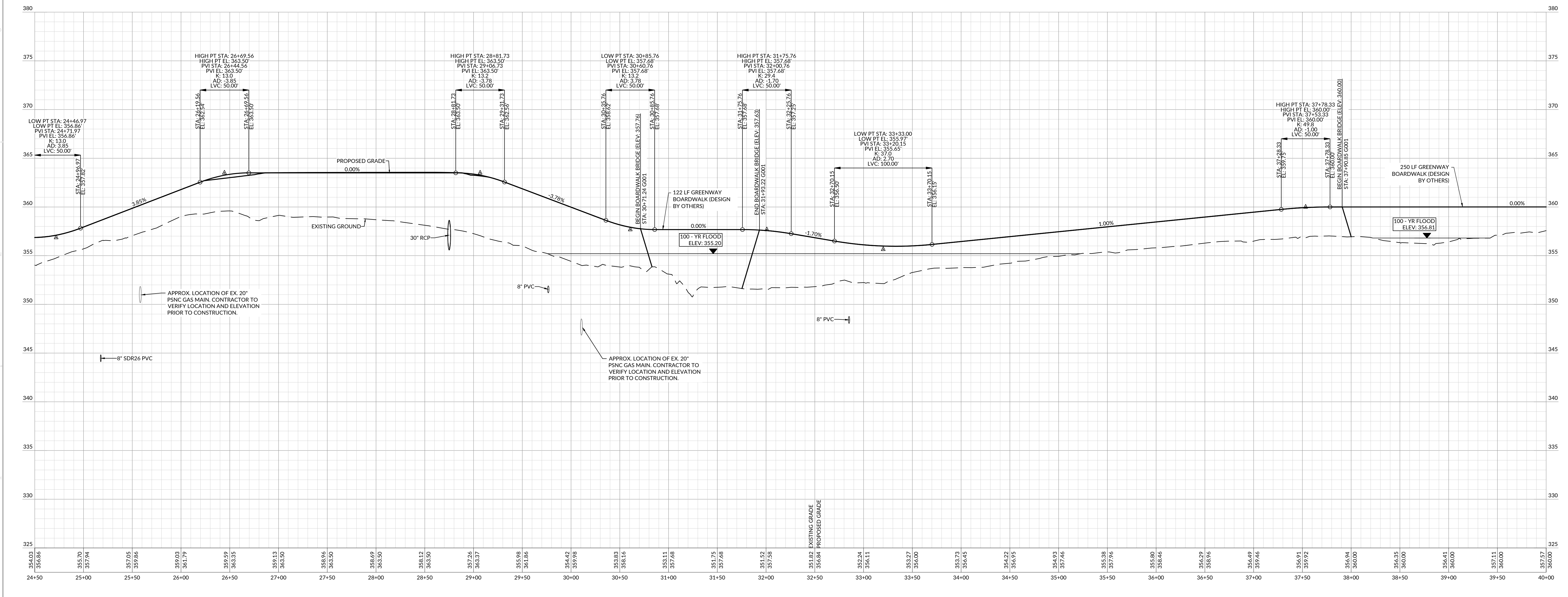
GREENWAY 1 PLAN & PROFILE (10+00 - 25+00)

C8.12



LINE TABLE				LINE TABLE				CURVE TABLE				CURVE TABLE					
LINE #	LENGTH	DIRECTION		LINE #	LENGTH	DIRECTION		CURVE #	RADIUS	LENGTH	CHORD LENGTH	CHORD DIRECTION	CURVE #	RADIUS	LENGTH	CHORD LENGTH	CHORD DIRECTION
L1	134.82	N44° 54' 52"W		L12	196.32	N13° 46' 40"W		C1	60.00	9.41	9.40	N49° 24' 32"W	C11	60.00	60.46	57.93	N42° 38' 42"W
L2	46.88	N53° 54' 11"W		L13	85.23	N49° 01' 01"E		C2	60.00	23.69	23.53	N42° 35' 39"W	C12	60.00	65.76	62.52	N17° 37' 10"E
L3	5.17	N33° 17' 07"W		L14	246.72	N13° 40' 55"E		C3	60.00	20.21	20.12	N40° 56' 07"W	C13	60.00	37.00	36.42	N31° 20' 58"E
L4	516.00	N50° 35' 06"W		L15	188.79	N18° 12' 19"W		C4	100.00	24.55	24.49	N43° 33' 07"W	C14	60.00	33.39	32.96	N02° 15' 42"W
L5	121.56	N36° 31' 08"W		L16	106.69	N01° 25' 51"W		C5	109.50	46.89	46.53	N24° 15' 03"W	C15	200.00	58.55	58.35	N09° 49' 05"W
L6	61.51	N11° 58' 59"W		L17	38.10	N28° 10' 37"W		C6	60.00	37.24	36.65	N05° 48' 00"E	C16	60.00	28.01	27.75	N14° 48' 14"W
L7	6.46	N23° 34' 59"E		L18	363.28	N01° 25' 42"W		C7	60.00	37.24	36.64	N05° 48' 12"E	C17	60.00	28.01	27.76	N14° 48' 09"W
L8	145.20	N11° 58' 36"W		L19	62.05	N09° 08' 06"E		C8	110.00	55.37	54.78	N02° 26' 33"E	C18	300.00	55.33	55.23	N03° 51' 12"E
L9	50.62	N16° 51' 41"E		L20	58.56	N33° 54' 32"W		C9	110.00	89.78	87.30	N06° 31' 09"W	C19	60.00	45.08	44.02	N12° 23' 13"W
L10	79.66	N29° 54' 00"W		L21	285.94	N20° 40' 06"E		C10	110.00	79.89	78.15	N50° 42' 22"W	C20	60.00	57.15	55.02	N06° 37' 13"W
L11	110.86	N71° 30' 44"W															

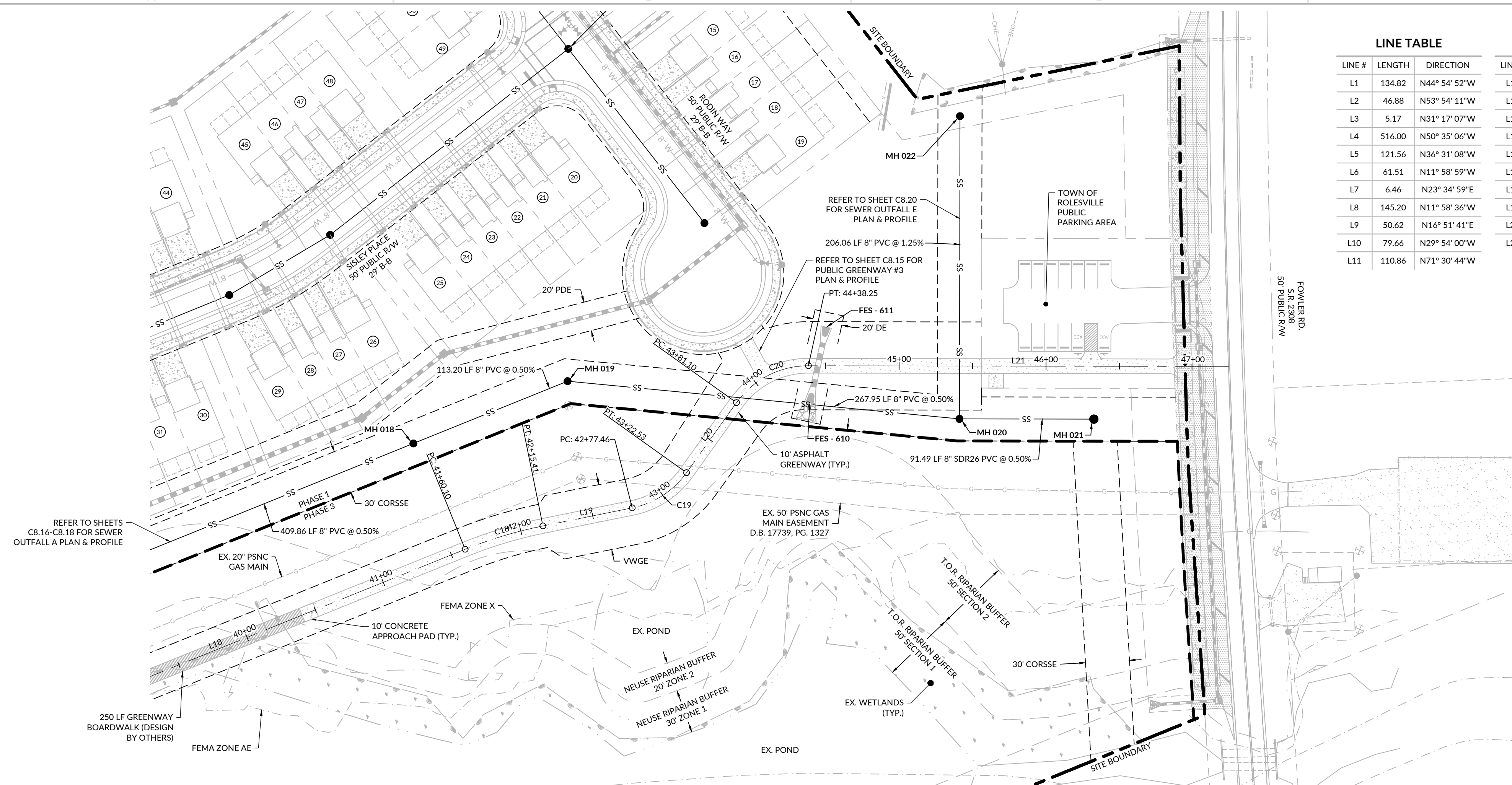
GREENWAY 1 (24+50 - 40+00)



SCALE: 1 inch = 50 ft. H
 1 inch = 5 ft. V

INITIAL PLAN DATE: 11/01/2024
 REVISIONS:
 1 - 01/02/2025
 REVISED PER REVIEW COMMENTS

WR JOB NUMBER: 23-0045
 DRN: WR DGN: WR CKD: WR
**GREENWAY 1 PLAN
 & PROFILE (39+50 - 48+00)**



LINE TABLE

LINE #	LENGTH	DIRECTION
L1	134.82	N44° 54' 52"W
L2	46.88	N53° 54' 11"W
L3	5.17	N31° 17' 07"W
L4	516.00	N50° 35' 06"W
L5	121.56	N36° 31' 08"W
L6	61.51	N11° 58' 59"W
L7	6.46	N23° 34' 59"E
L8	145.20	N11° 58' 36"W
L9	50.62	N16° 51' 41"E
L10	79.66	N29° 54' 00"W
L11	110.86	N71° 30' 44"W

LINE TABLE

LINE #	LENGTH	DIRECTION
L12	196.32	N13° 46' 40"W
L13	85.23	N49° 01' 01"E
L14	246.72	N13° 40' 55"E
L15	188.79	N18° 12' 19"W
L16	106.69	N01° 25' 51"W
L17	38.10	N28° 10' 37"W
L18	363.28	N01° 25' 42"W
L19	62.05	N09° 08' 06"E
L20	58.56	N33° 54' 32"W
L21	285.94	N20° 40' 06"E

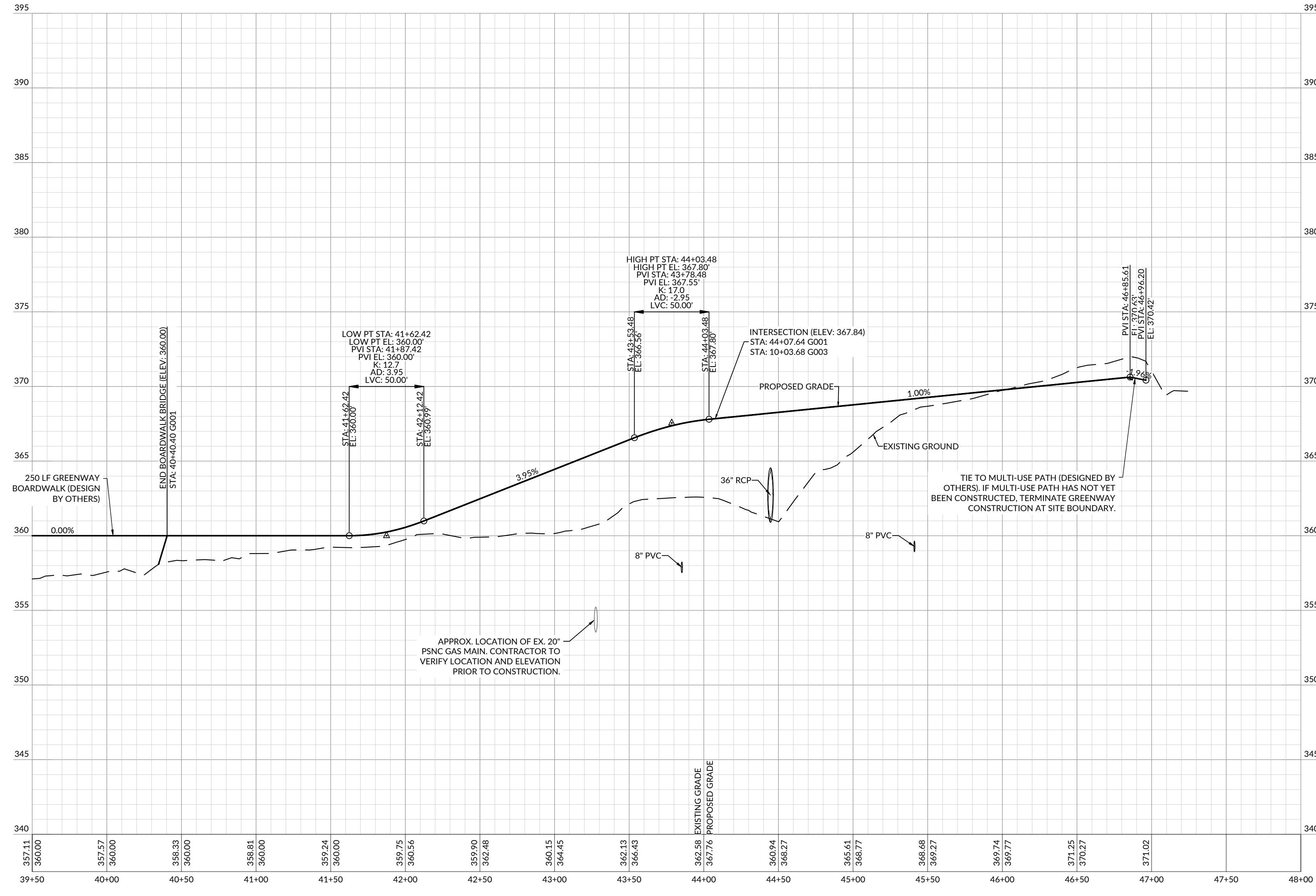
CURVE TABLE

CURVE #	RADIUS	LENGTH	CHORD LENGTH	CHORD DIRECTION
C1	60.00	9.41	9.40	N49° 24' 32"W
C2	60.00	23.69	23.53	N42° 35' 39"W
C3	60.00	20.21	20.12	N40° 56' 07"W
C4	100.00	24.55	24.49	N43° 33' 07"W
C5	109.50	46.89	46.53	N24° 15' 03"W
C6	60.00	37.24	36.65	N05° 48' 00"E
C7	60.00	37.24	36.64	N05° 48' 12"E
C8	110.00	55.37	54.78	N02° 26' 33"E
C9	110.00	89.78	87.30	N06° 31' 09"W
C10	110.00	79.89	78.15	N50° 42' 22"W

CURVE TABLE

CURVE #	RADIUS	LENGTH	CHORD LENGTH	CHORD DIRECTION
C11	60.00	60.46	57.93	N42° 38' 42"W
C12	60.00	65.76	62.52	N17° 37' 10"E
C13	60.00	37.00	36.42	N31° 20' 58"E
C14	60.00	33.39	32.96	N02° 15' 42"W
C15	200.00	58.55	58.35	N09° 49' 05"W
C16	60.00	28.01	27.75	N14° 48' 14"W
C17	60.00	28.01	27.76	N14° 48' 09"W
C18	300.00	55.31	55.23	N03° 51' 12"E
C19	60.00	45.08	44.02	N12° 23' 13"W
C20	60.00	57.15	55.02	N06° 37' 13"W

GREENWAY 1 (39+50 - 48+00)

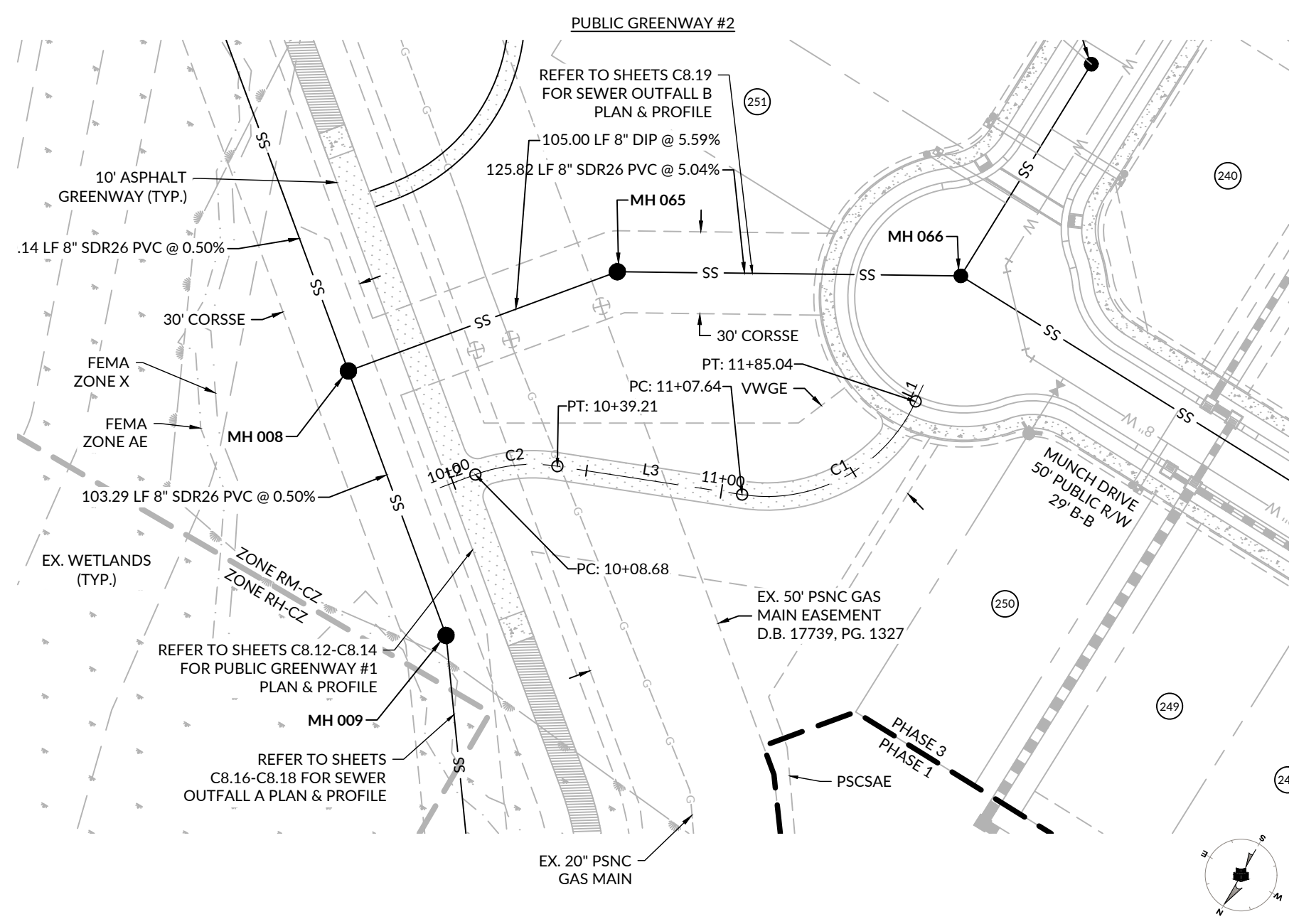


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SCALE: 1 inch = 50 ft, H
 1 inch = 5 ft, V

INITIAL PLAN DATE: 11/01/2024
 REVISIONS:
 1 - 01/02/2025
 REVISED PER REVIEW COMMENTS

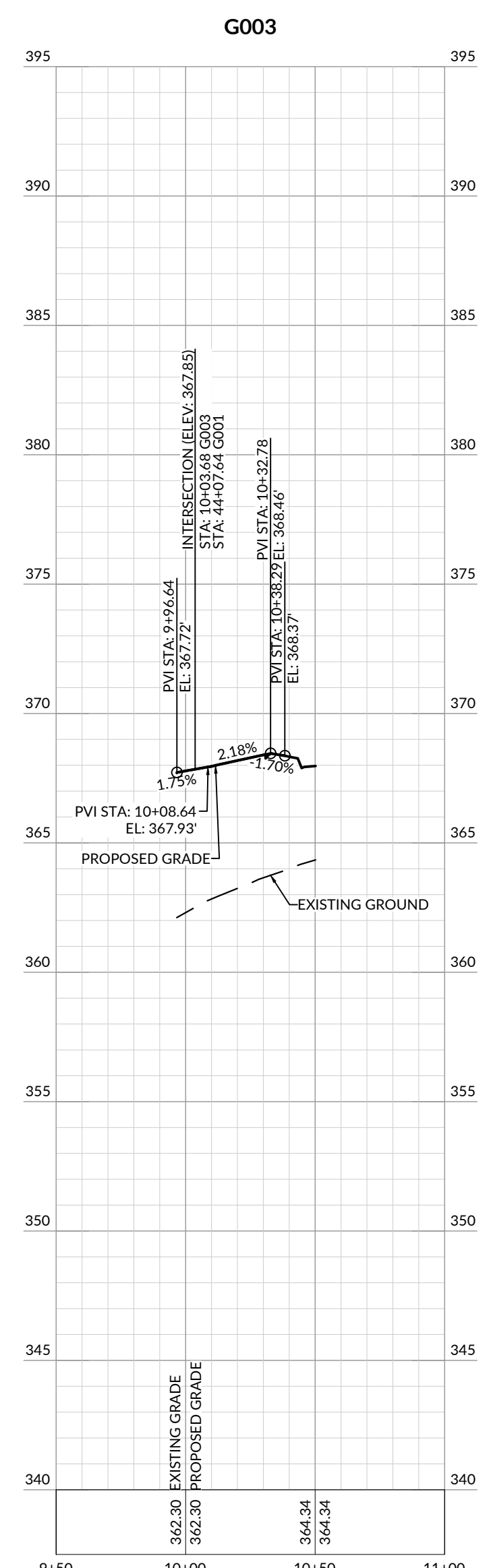
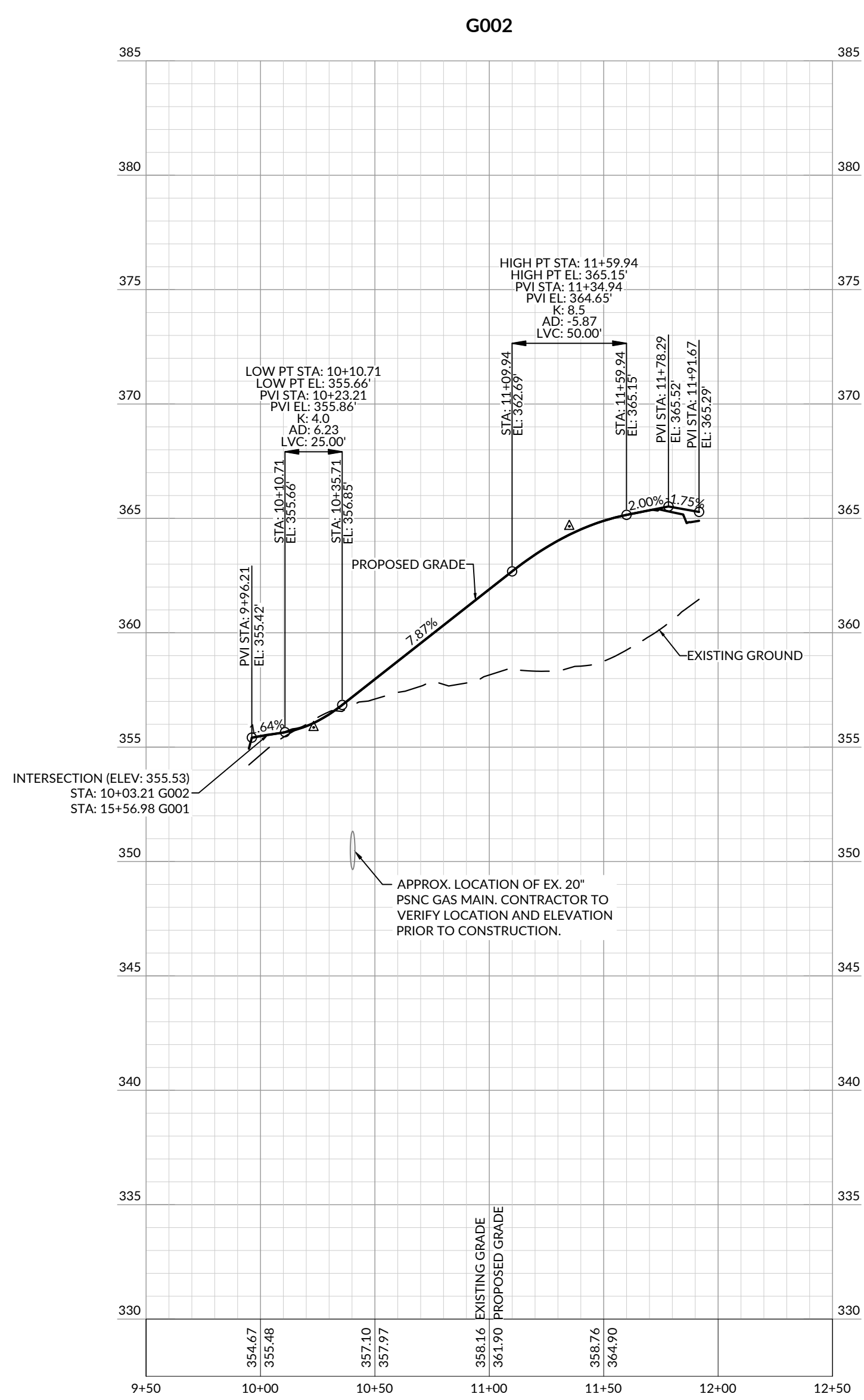
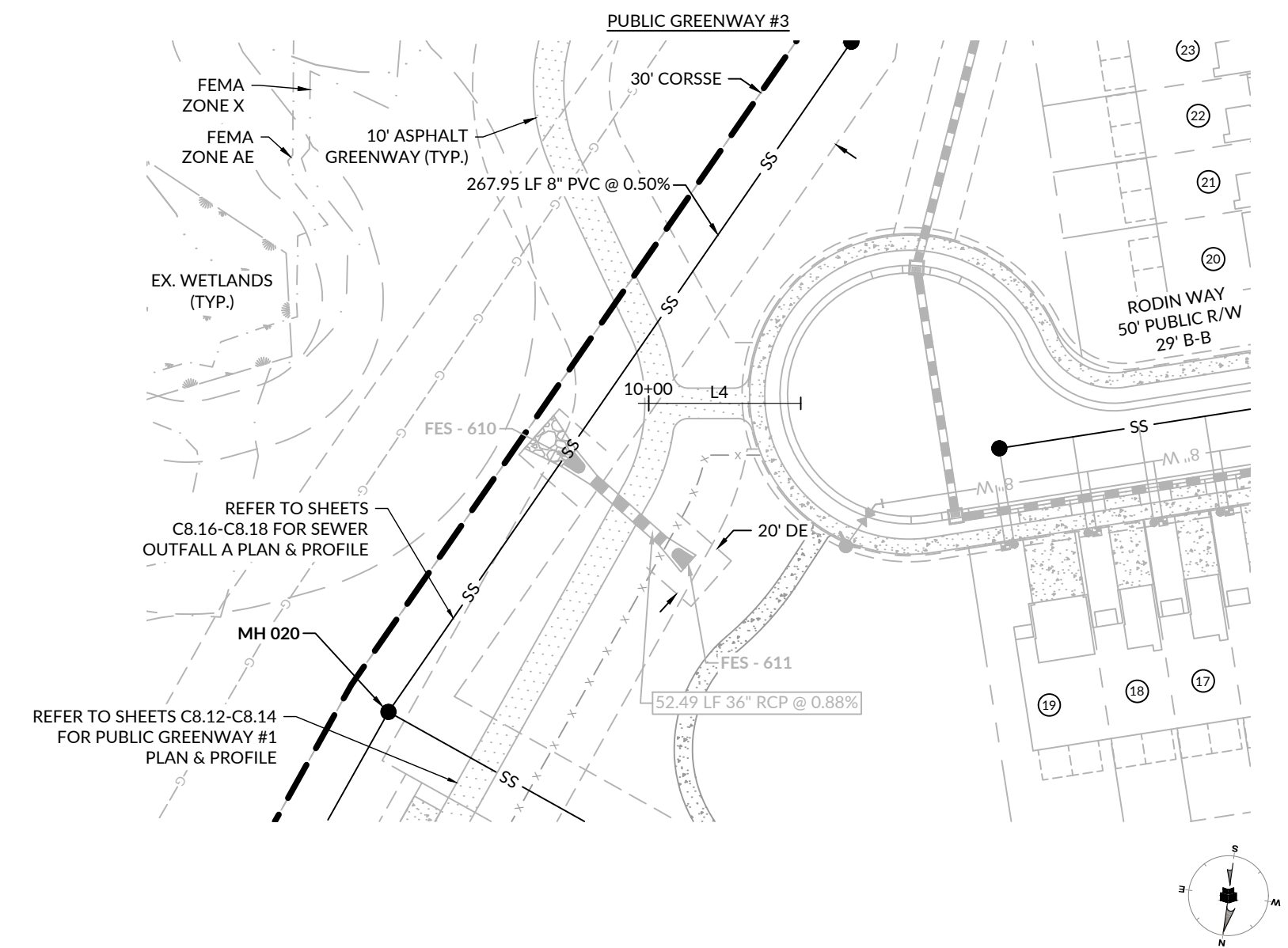


LINE TABLE

LINE #	LENGTH	DIRECTION
L1	6.63	S05° 29' 44"E
L2	13.76	S39° 15' 36"W
L3	68.43	S68° 24' 54"W
L4	53.58	S81° 26' 19"W

CURVE TABLE

CURVE #	RADIUS	LENGTH	CHORD LENGTH	CHORD DIRECTION
C1	60.00	77.40	72.14	S31° 27' 35"W
C2	60.00	30.53	30.20	S53° 50' 15"W



J:\2024\04\04_Plan_Works\Assemblies\CID Drawings\2401\Greenways 2 & 3\PLAN & PROFILE.dwg Thursday, January 12, 2023 9:29:45 AM - TCDK

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CONSTRUCTION INFRASTRUCTURE DRAWINGS
BROADMOOR
CID-24-06

ROLESVILLE ROAD | ROLESVILLE, NC 27587 | WAKE COUNTY

PRELIMINARY
NOT APPROVED FOR
CONSTRUCTION

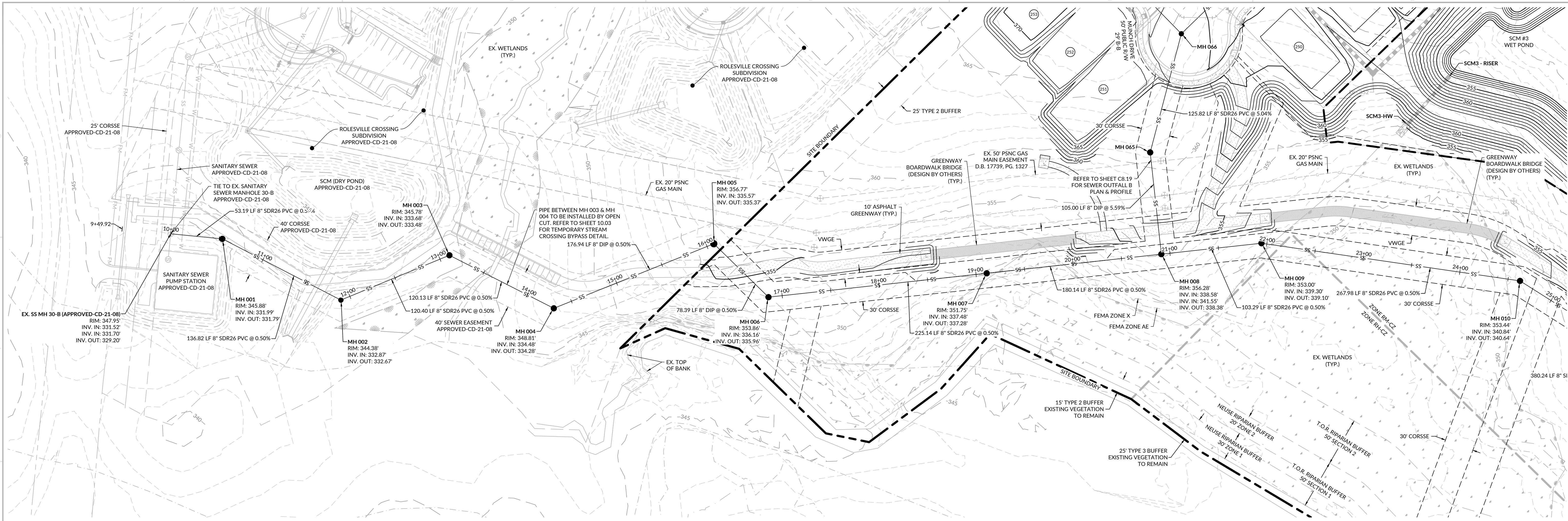
SCALE: 1 inch = 50 ft. H
3 inch = 5 ft. V

INITIAL PLAN DATE: 11/01/2024
REVISIONS:
1 - 01/02/2025
REVISED PER REVIEW COMMENTS

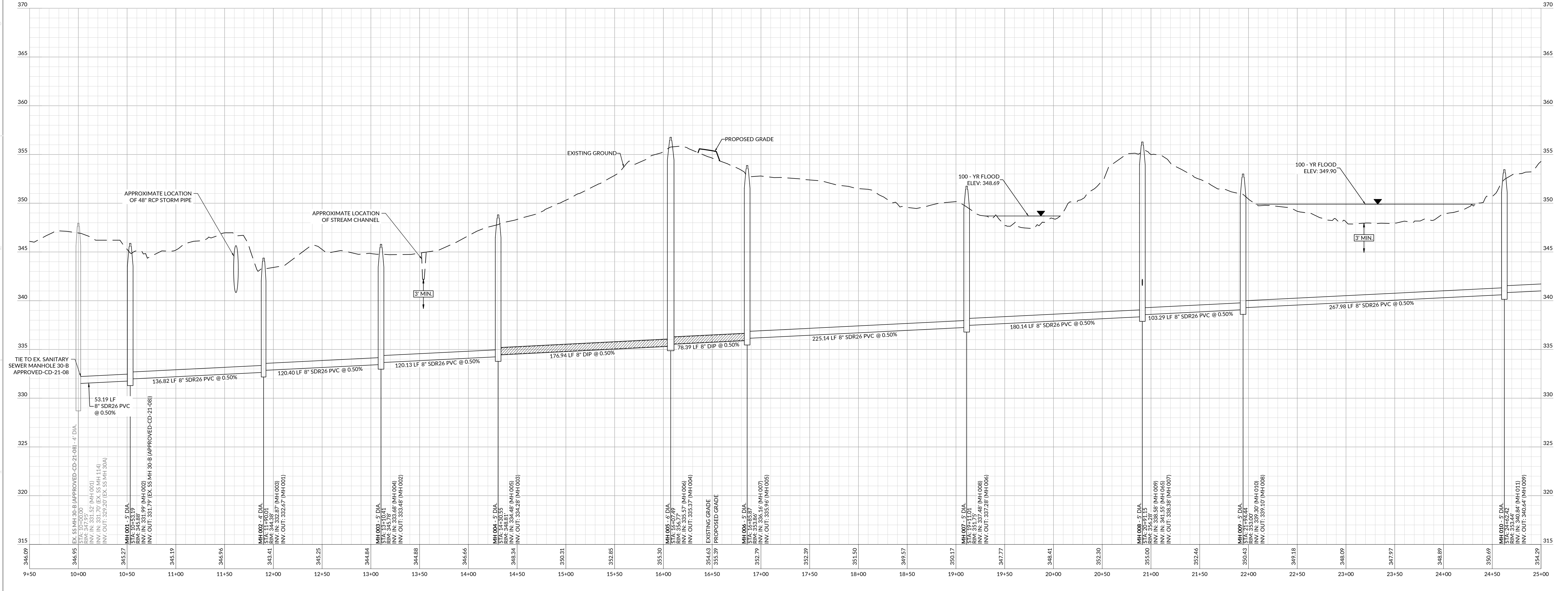
WR JOB NUMBER 23-0045
DRN: WR DGN: WR CKD: WR

GREENWAYS 2 & 3
PLAN & PROFILE

C8.15



SEWER OUTFALL A (10+00 - 25+00)



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CONSTRUCTION INFRASTRUCTURE DRAWINGS
BROADMOOR CID-24-06
 ROLESVILLE ROAD | ROLESVILLE, NC 27587 | WAKE COUNTY

PRELIMINARY NOT APPROVED FOR CONSTRUCTION
 (Professional Engineer Seal: TERENCE COOK, No. 48008, State of North Carolina)

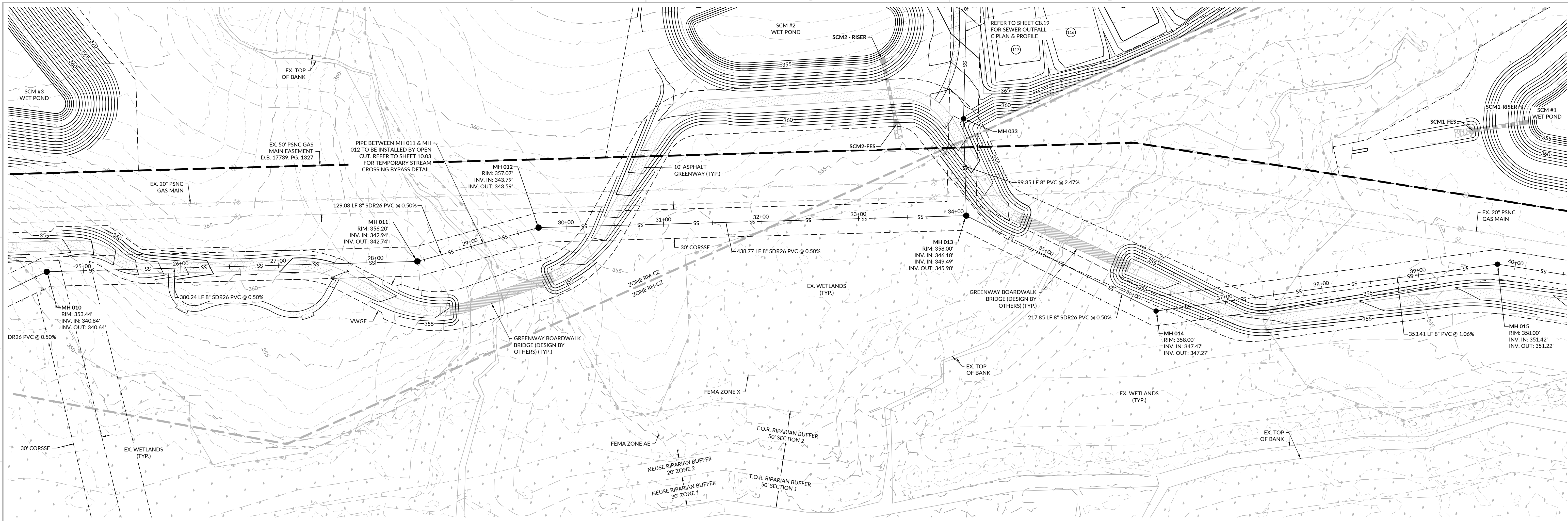
SCALE: 1 inch = 50 ft, H
 1 inch = 5 ft, V

INITIAL PLAN DATE: 11/01/2024
 REVISIONS:
 1 - 01/02/2025
 REVISED PER REVIEW COMMENTS

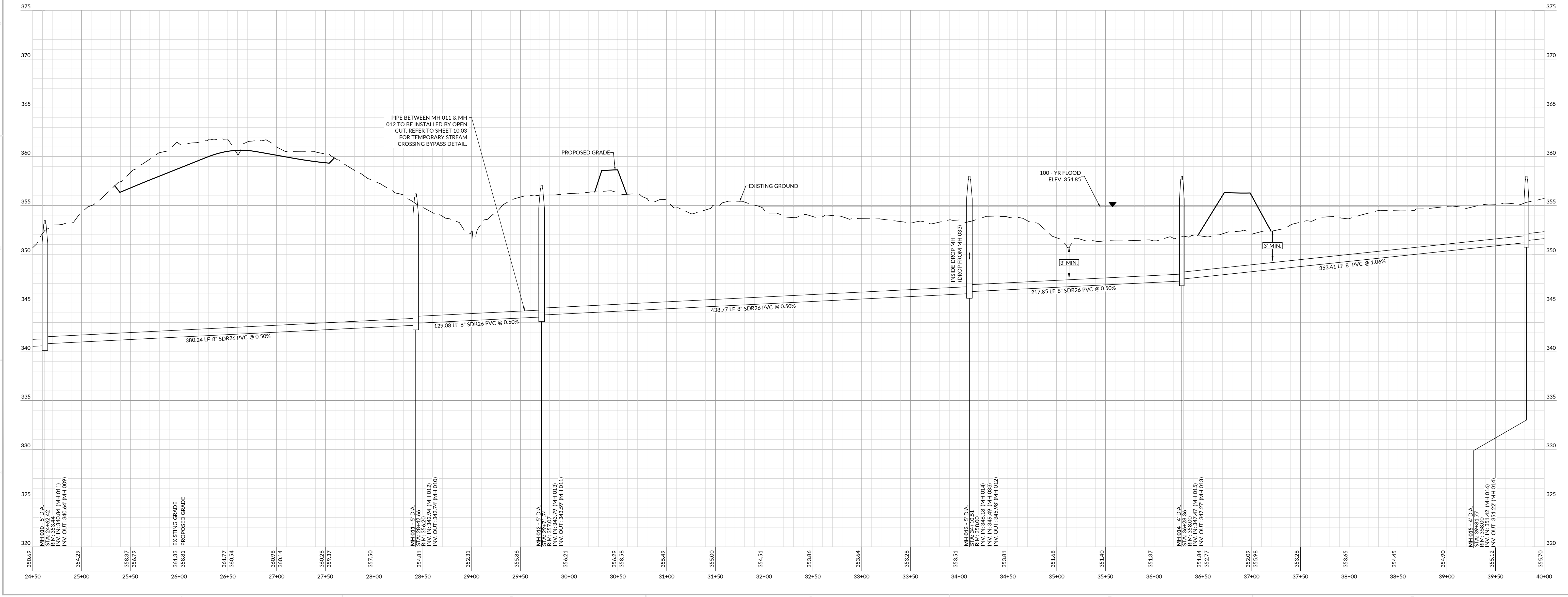
WR JOB NUMBER: 23-0045
 DRN-WR DGN-WR CKD-WR

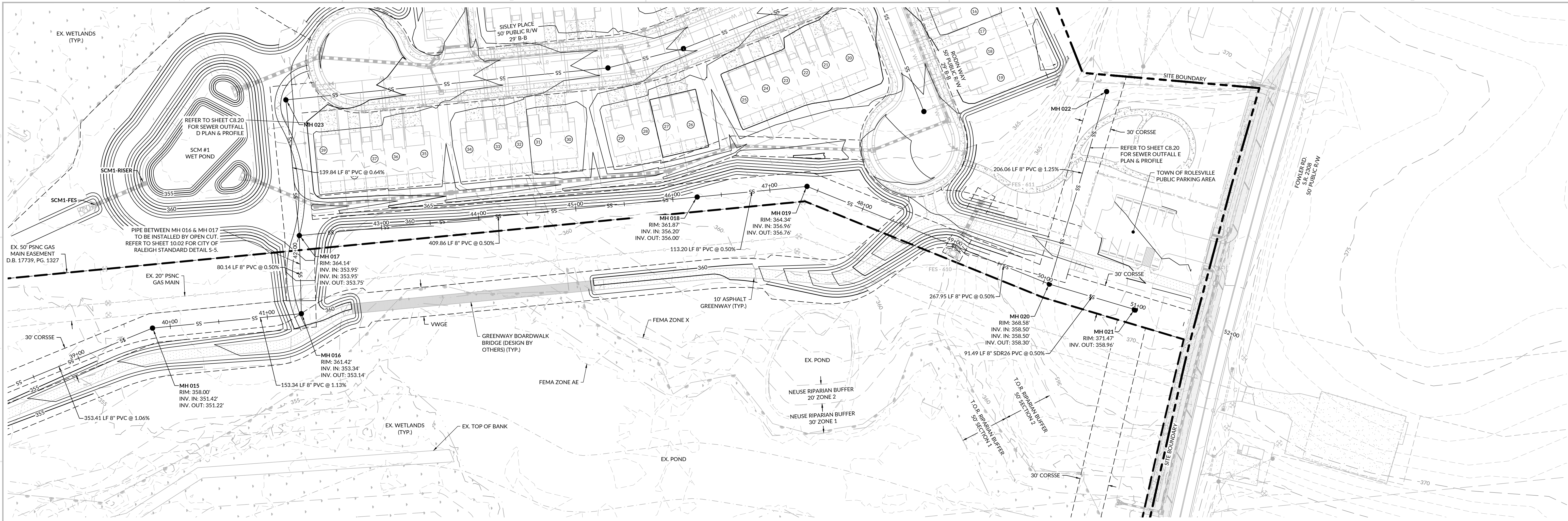
SEWER OUTFALL A (10+00 - 25+00) PLAN & PROFILE

C8.16

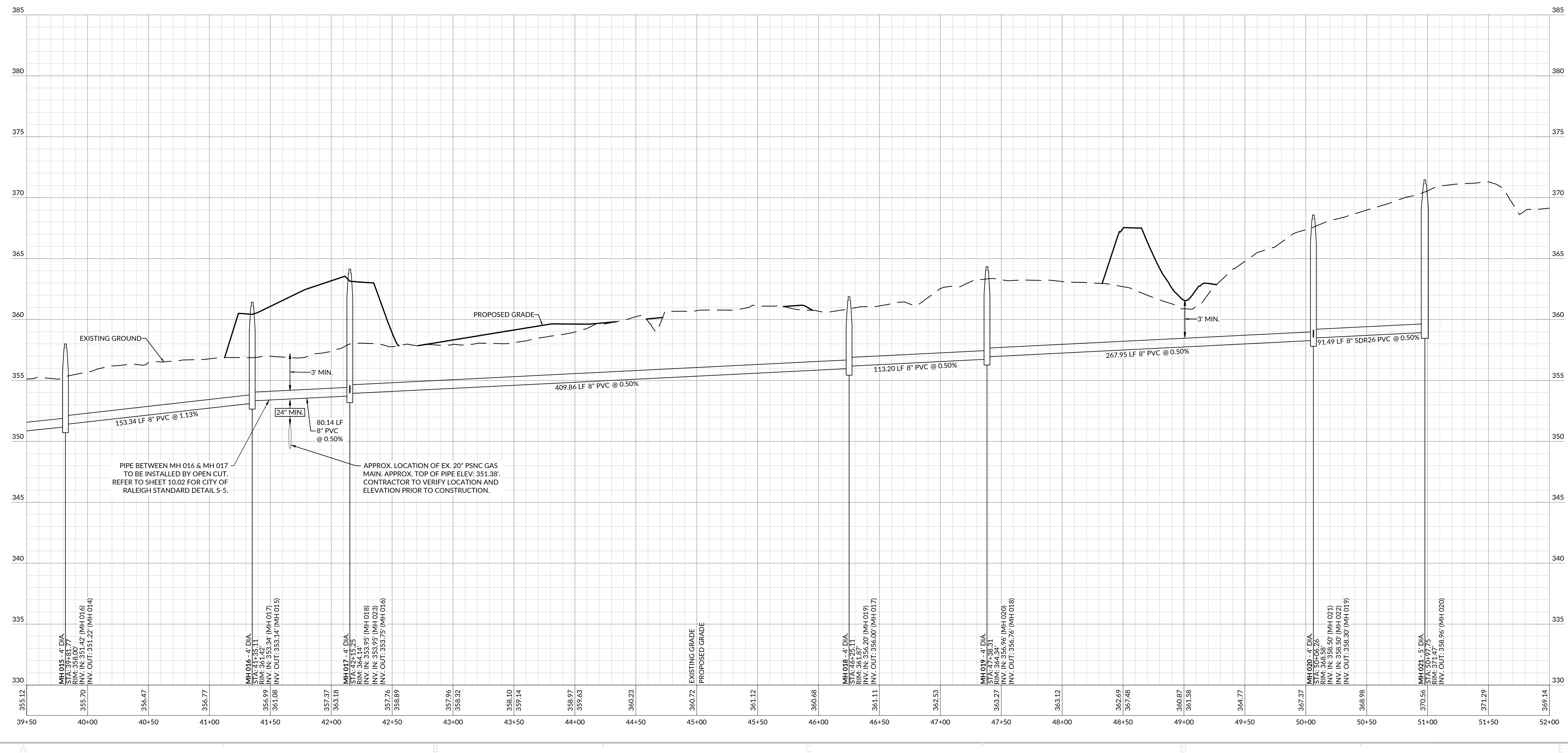


SEWER OUTFALL A (24+50 - 40+00)





SEWER OUTFALL A (39+50 - 52+00)



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 CARY, NC 27518

CONSTRUCTION INFRASTRUCTURE DRAWINGS
BROADMOOR
CID-24-06

ROLESVILLE ROAD | ROLESVILLE, NC 27587 | WAKE COUNTY

PRELIMINARY
 NOT APPROVED FOR
 CONSTRUCTION

SCALE: 1 inch = 50 ft, H
 1 inch = 5 ft, V

INITIAL PLAN DATE: 11/01/2024
 REVISIONS:
 1 - 01/02/2025
 REVISED PER REVIEW COMMENTS

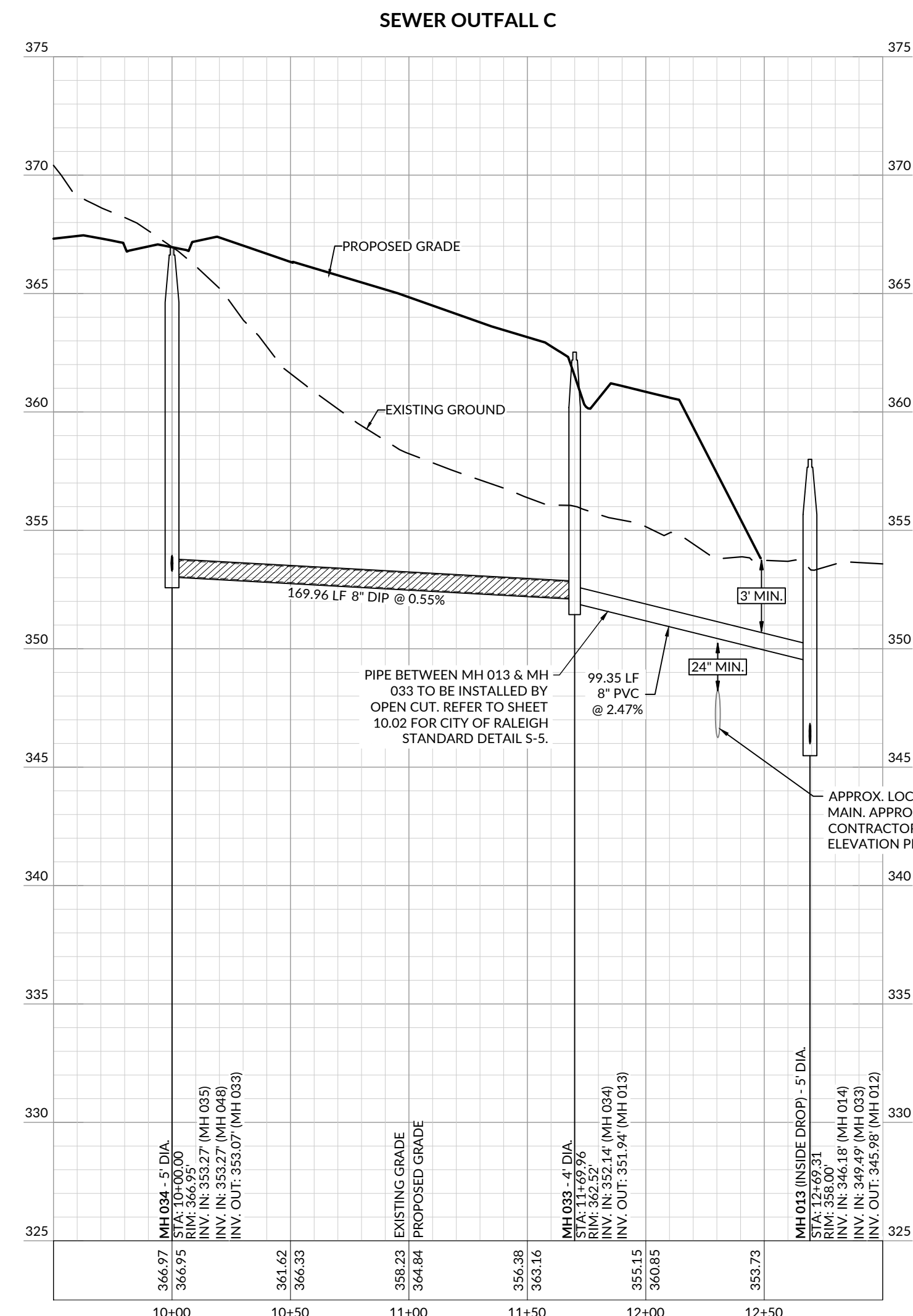
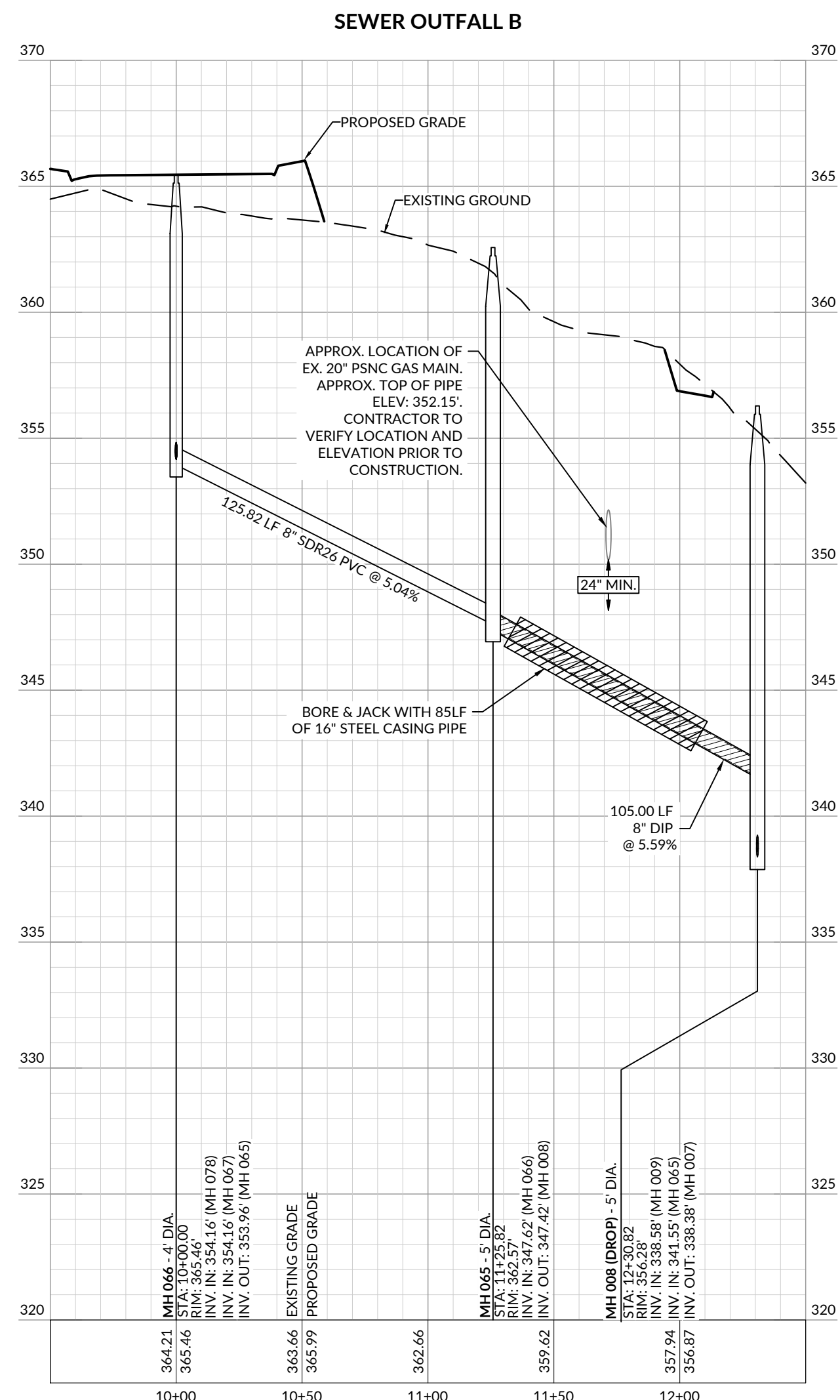
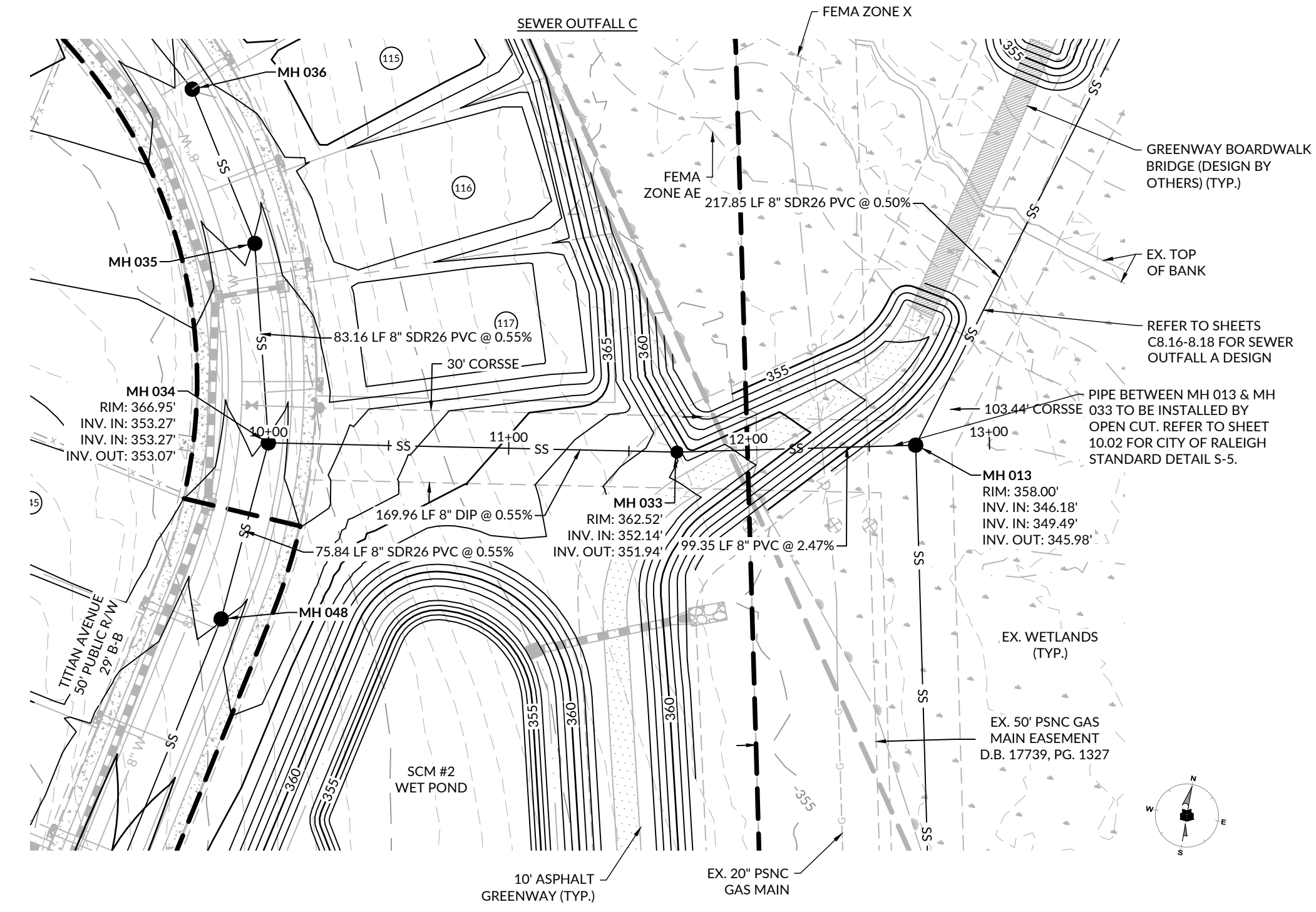
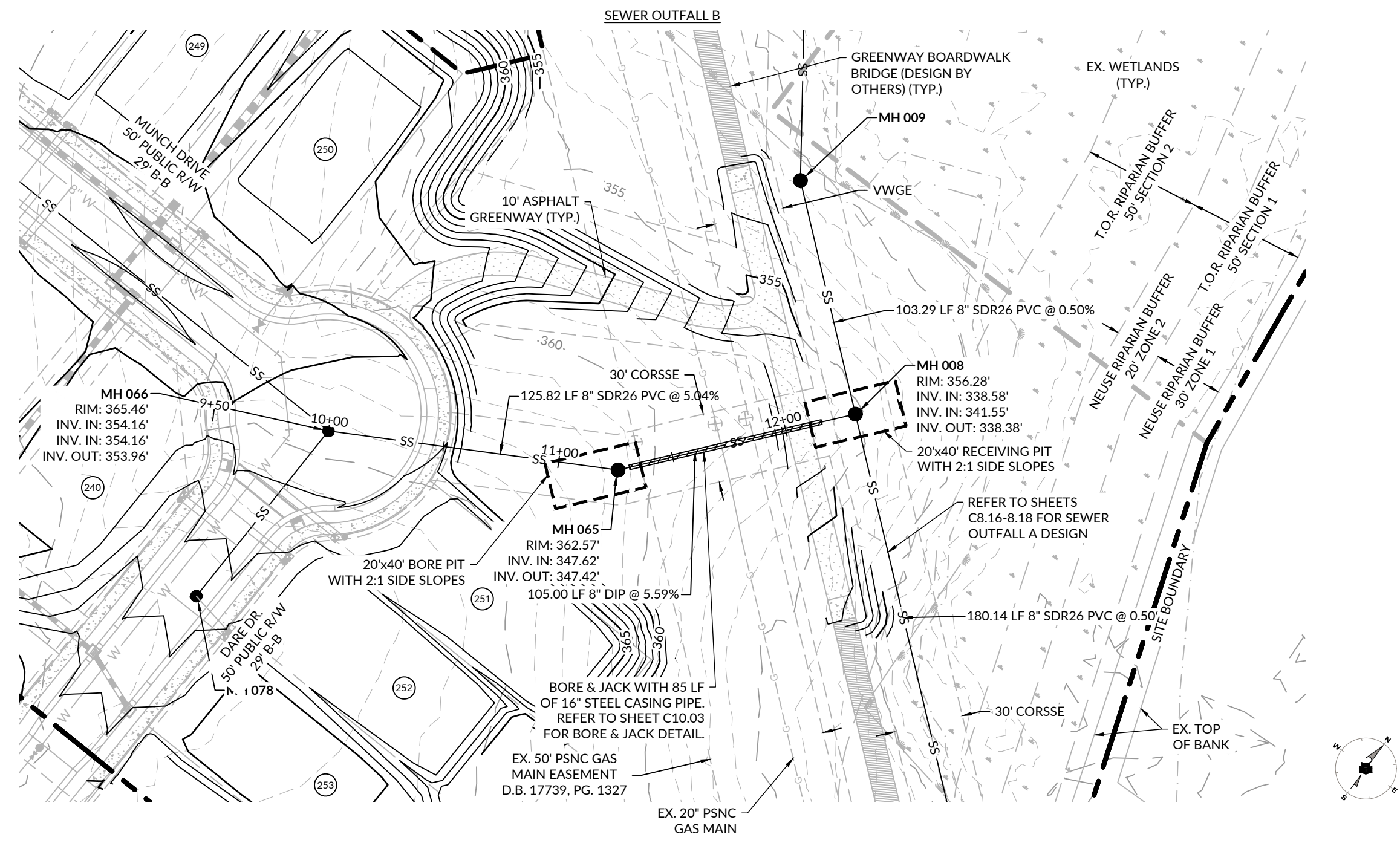
WR JOB NUMBER: 23-0045
 DRN: WR DGN: WR CKD: WR

**SEWER OUTFALL A
 (39+50 - 52+00) PLAN
 & PROFILE**

C8.18

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CONSTRUCTION INFRASTRUCTURE DRAWINGS
BROADMOOR
CID-24-06



0 25 50
 SCALE: 1 inch = 50 ft. H
 1 inch = 5 ft. V

INITIAL PLAN DATE: 11/01/2024
 REVISIONS:
 1 - 01/02/2025
 REVISED PER REVIEW COMMENTS

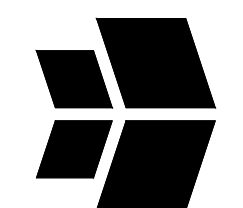
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 DRN: WR DGN: WR CKD: WR

SEWER OUTFALLS B & C PLAN & PROFILE

C8.19



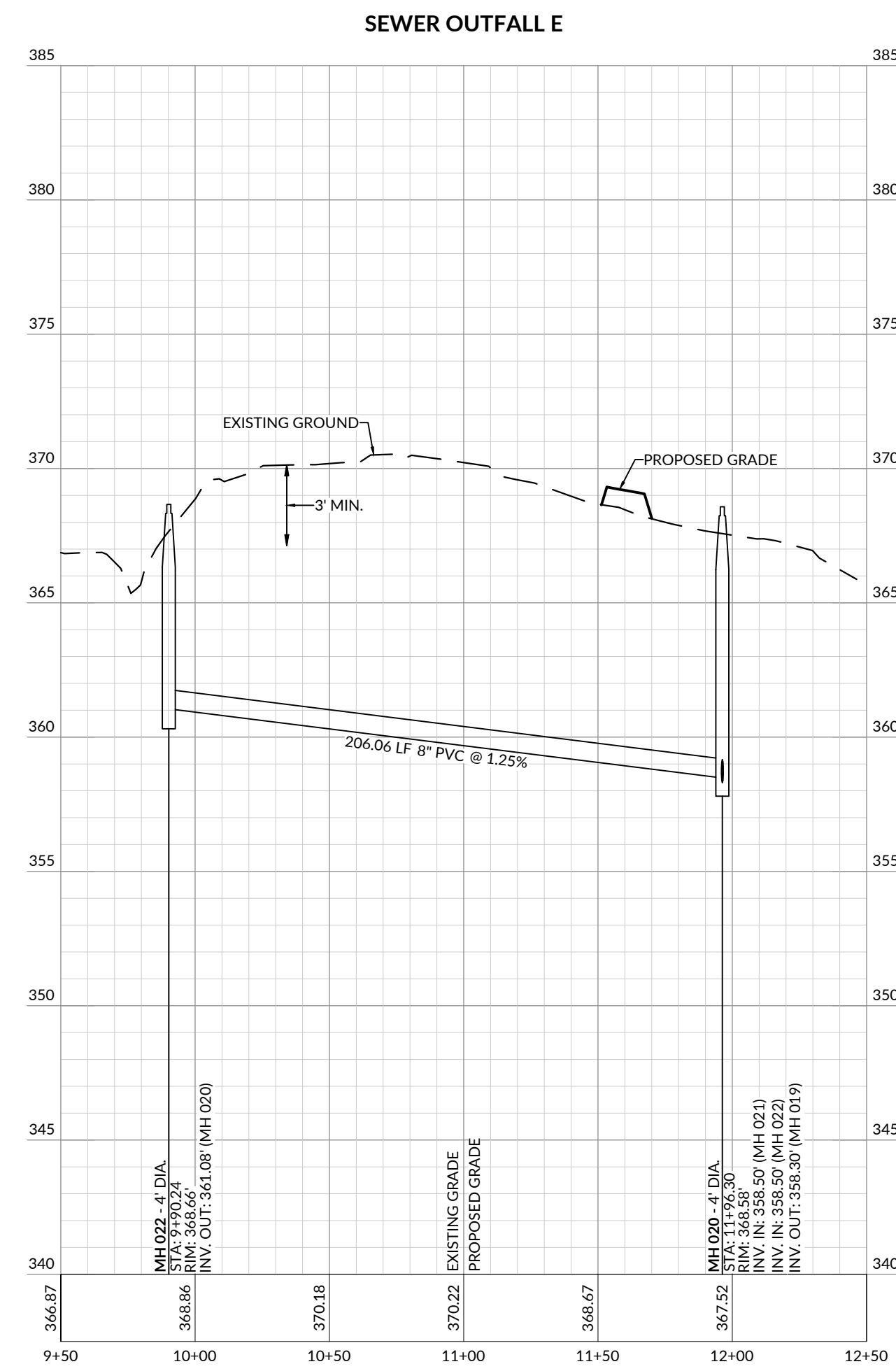
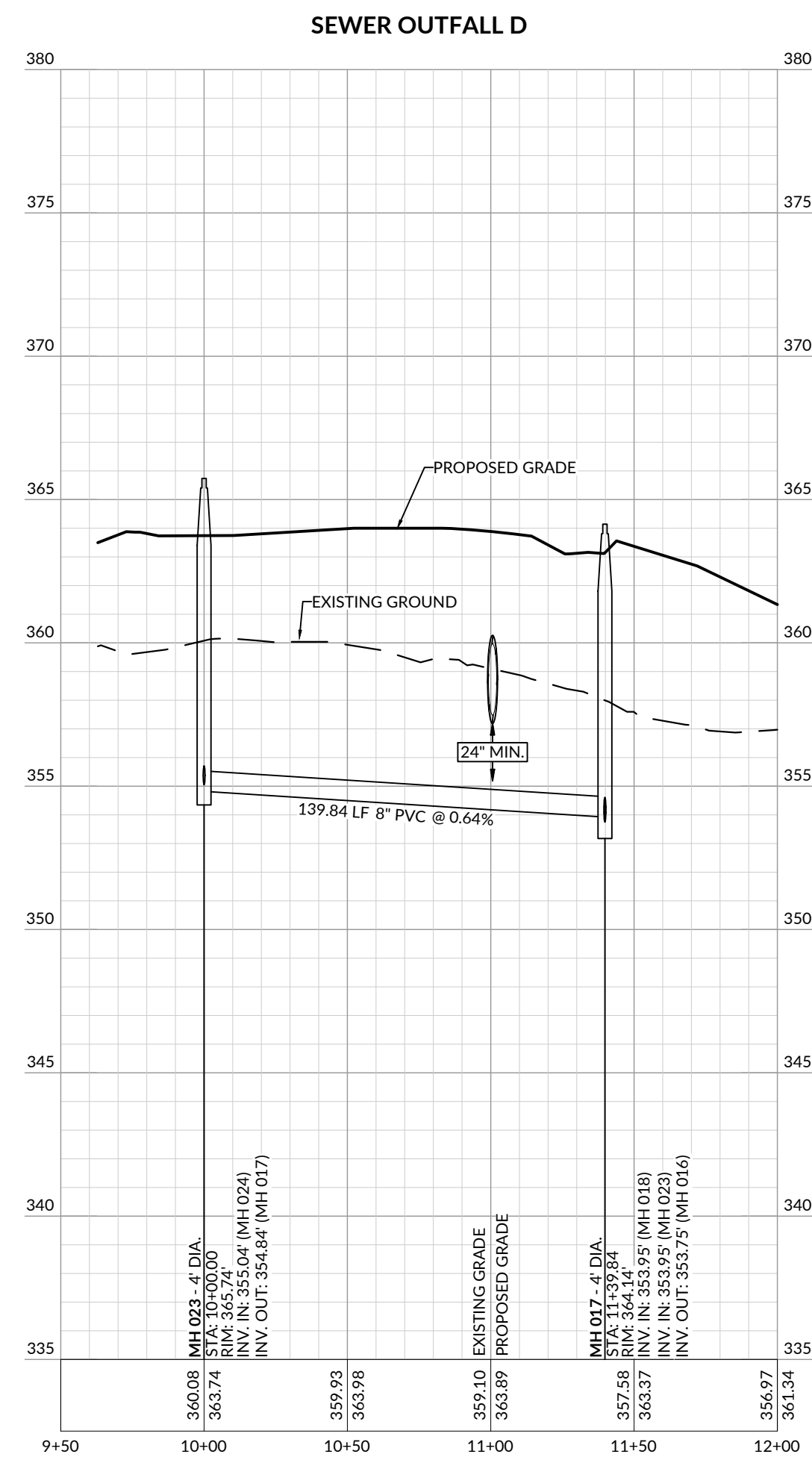
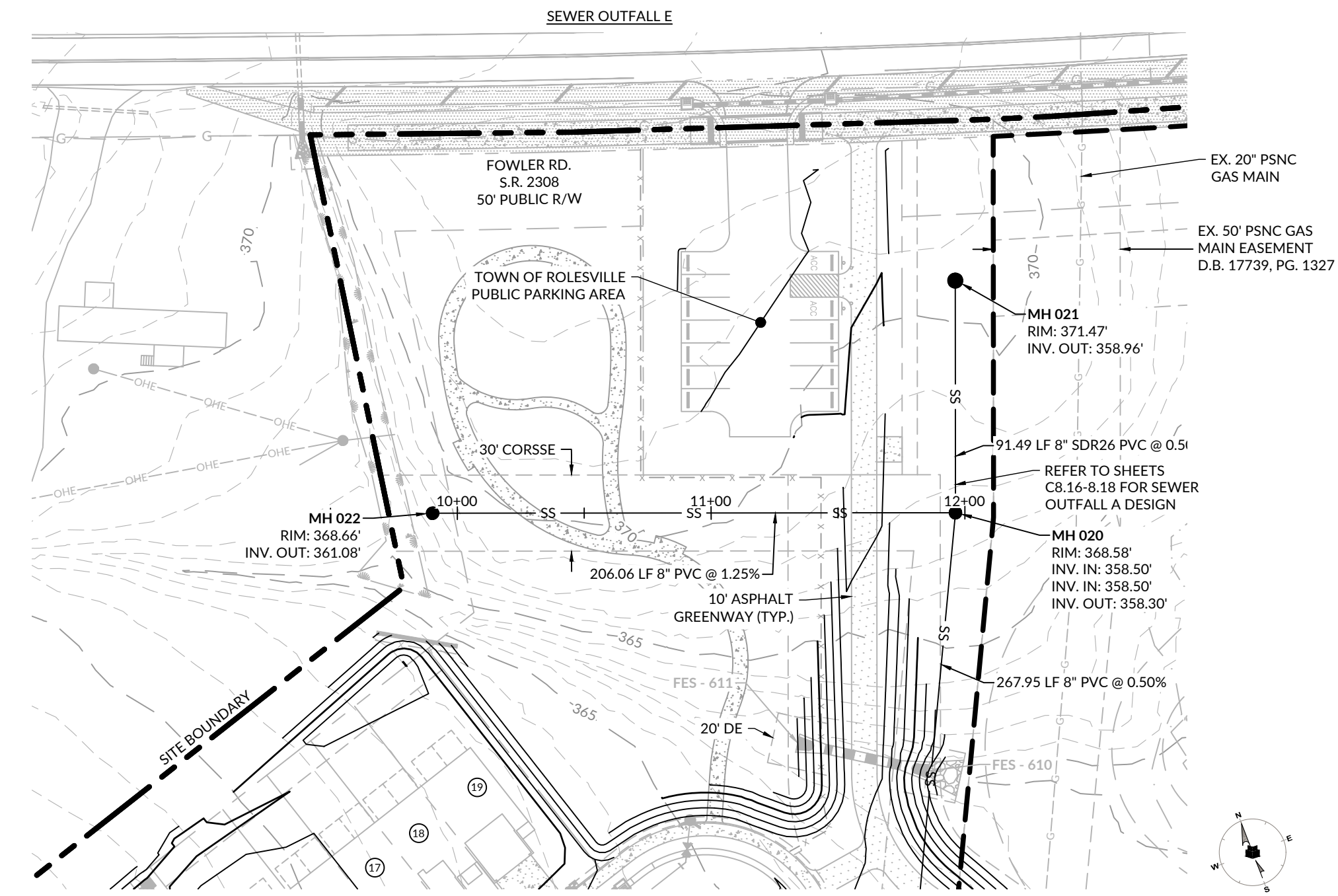
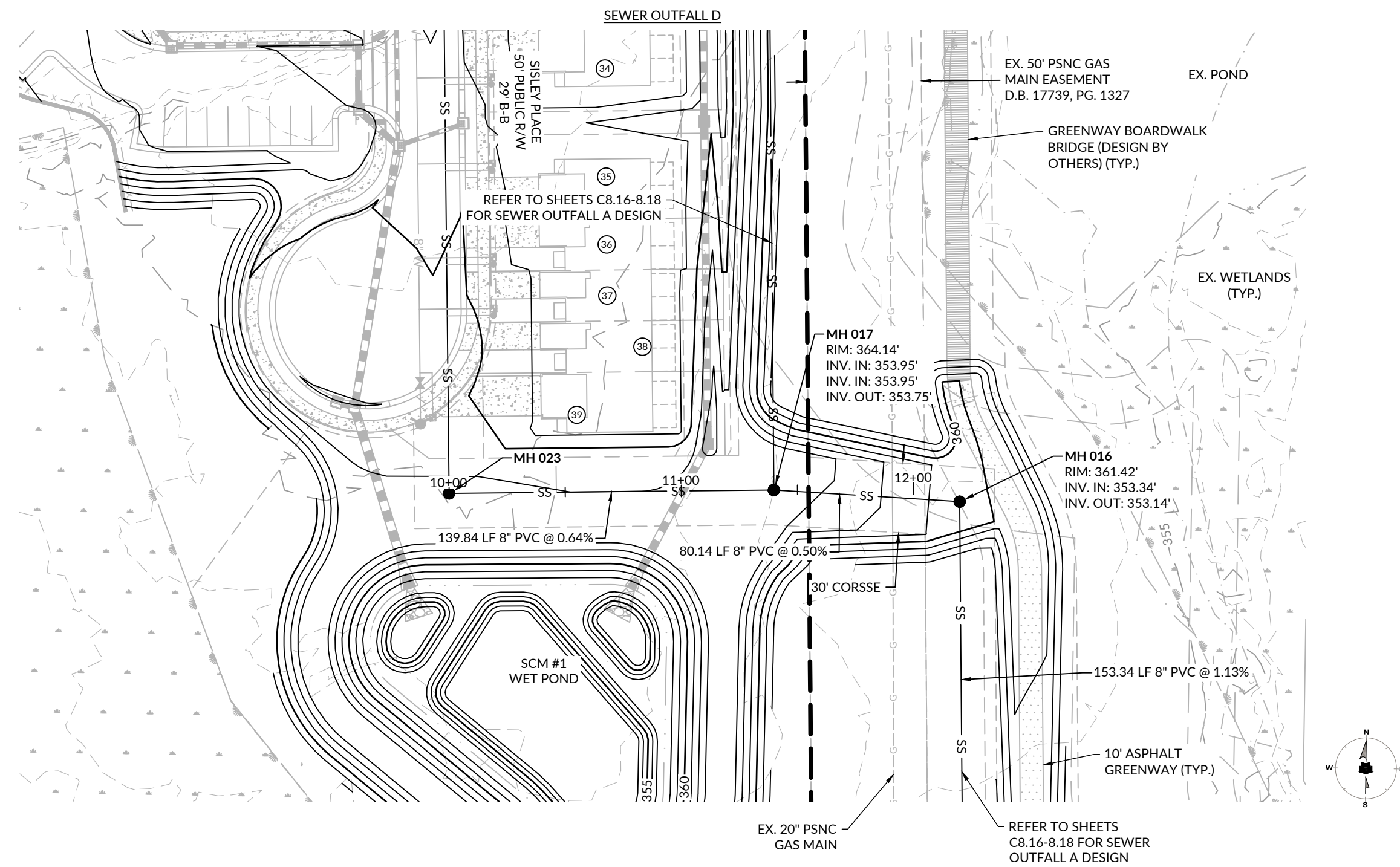
1225 CRESCENT GREEN DRIVE,
 SUITE 200
 CARY, NC 27518



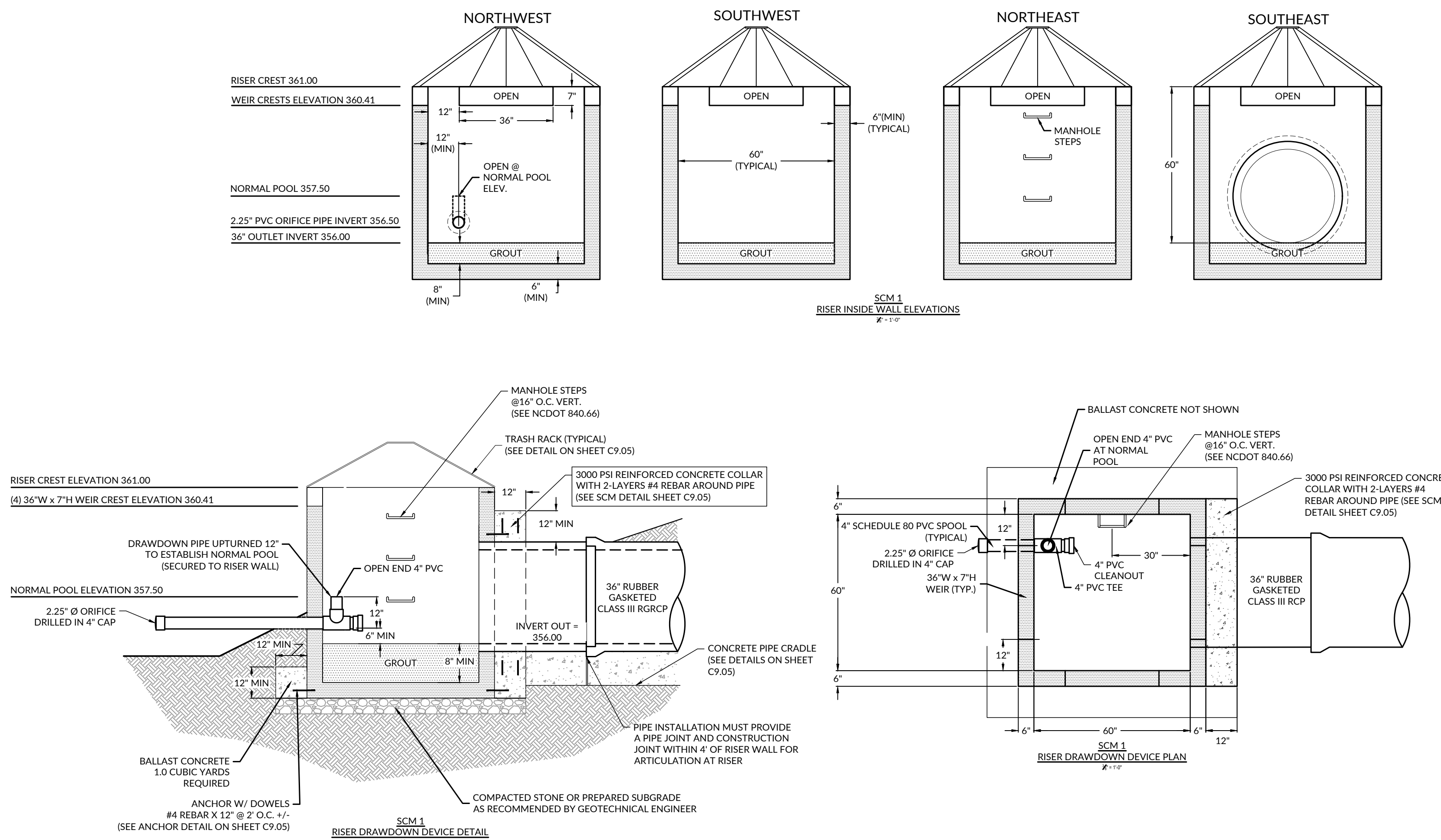
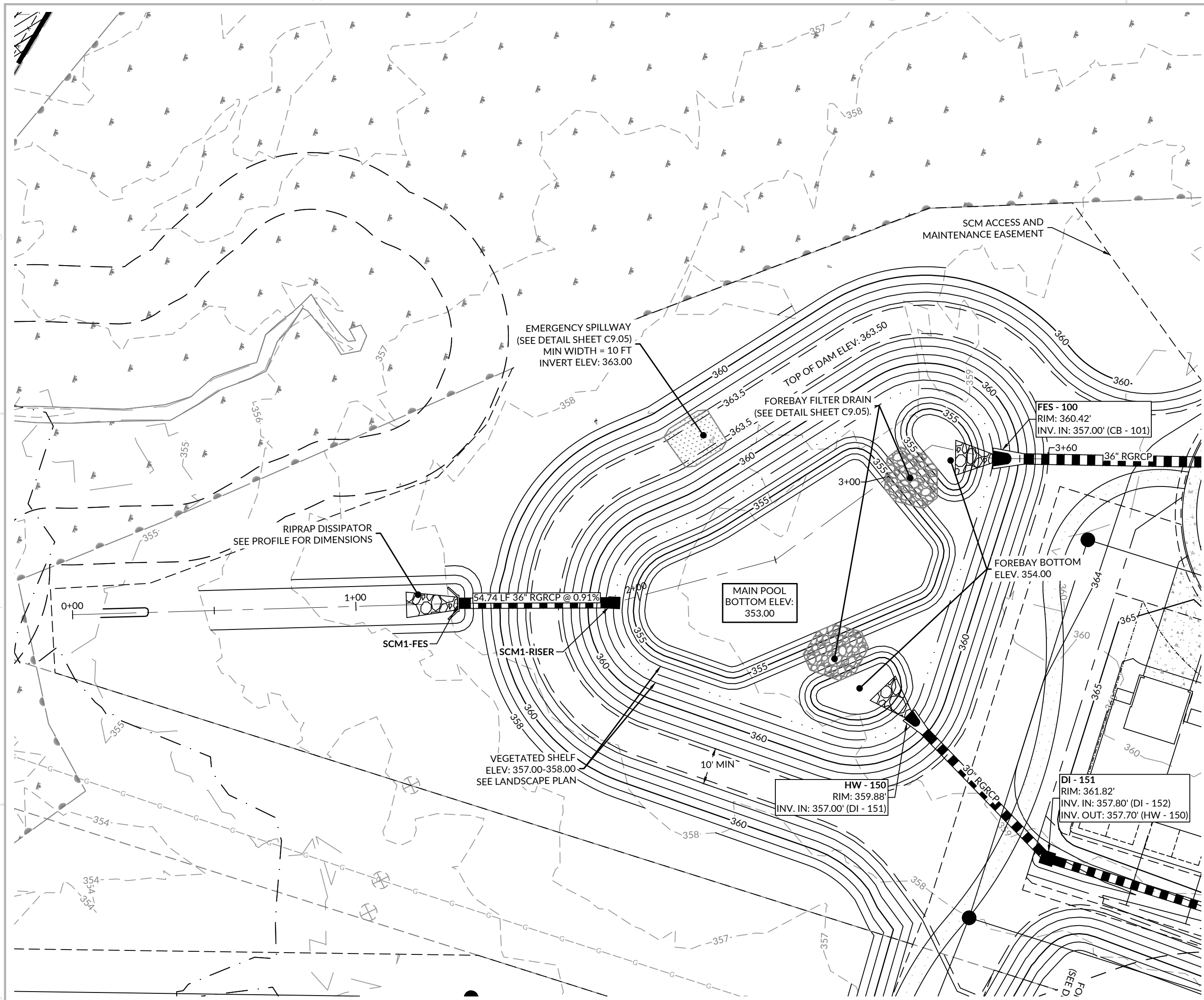
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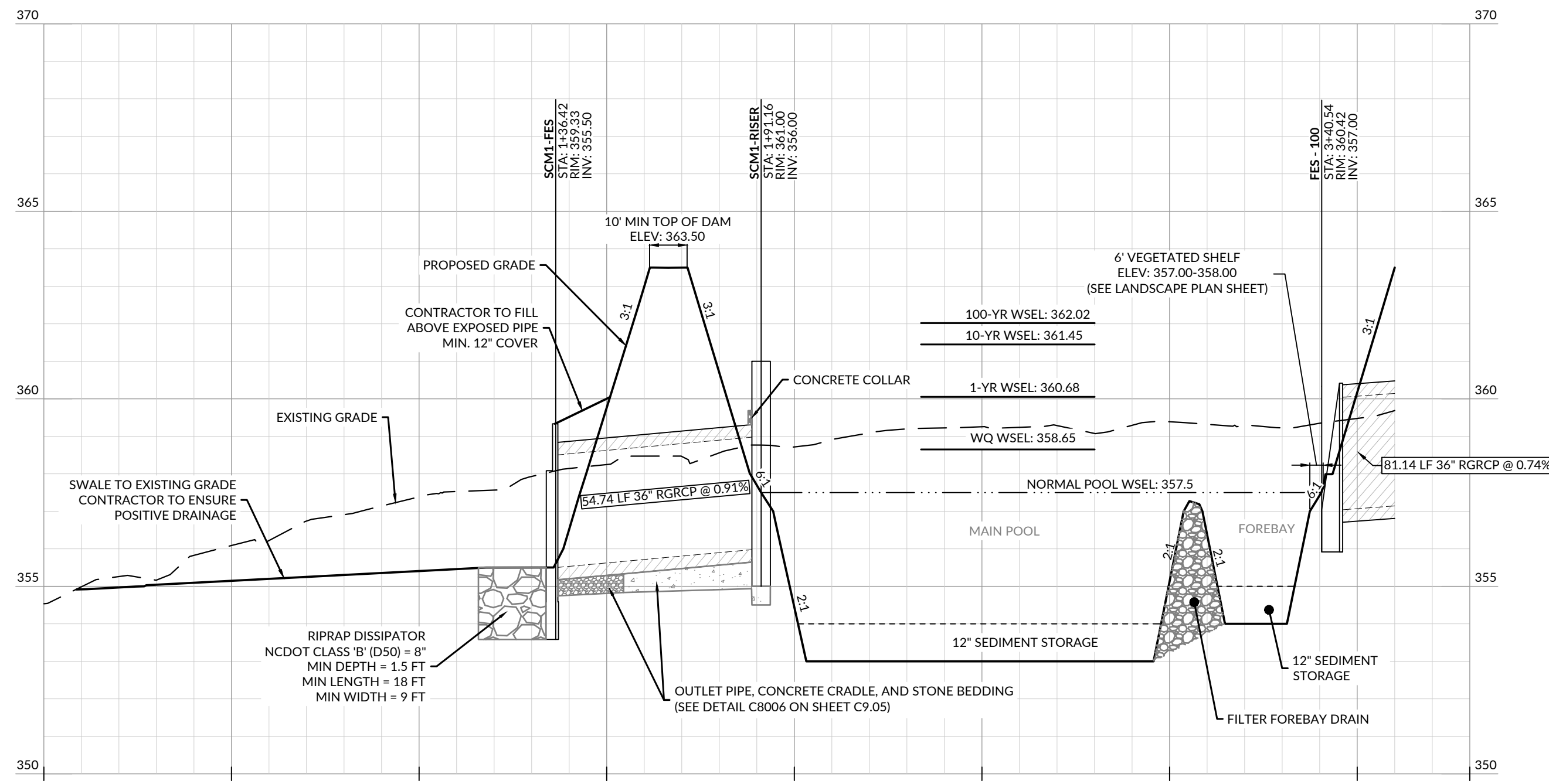


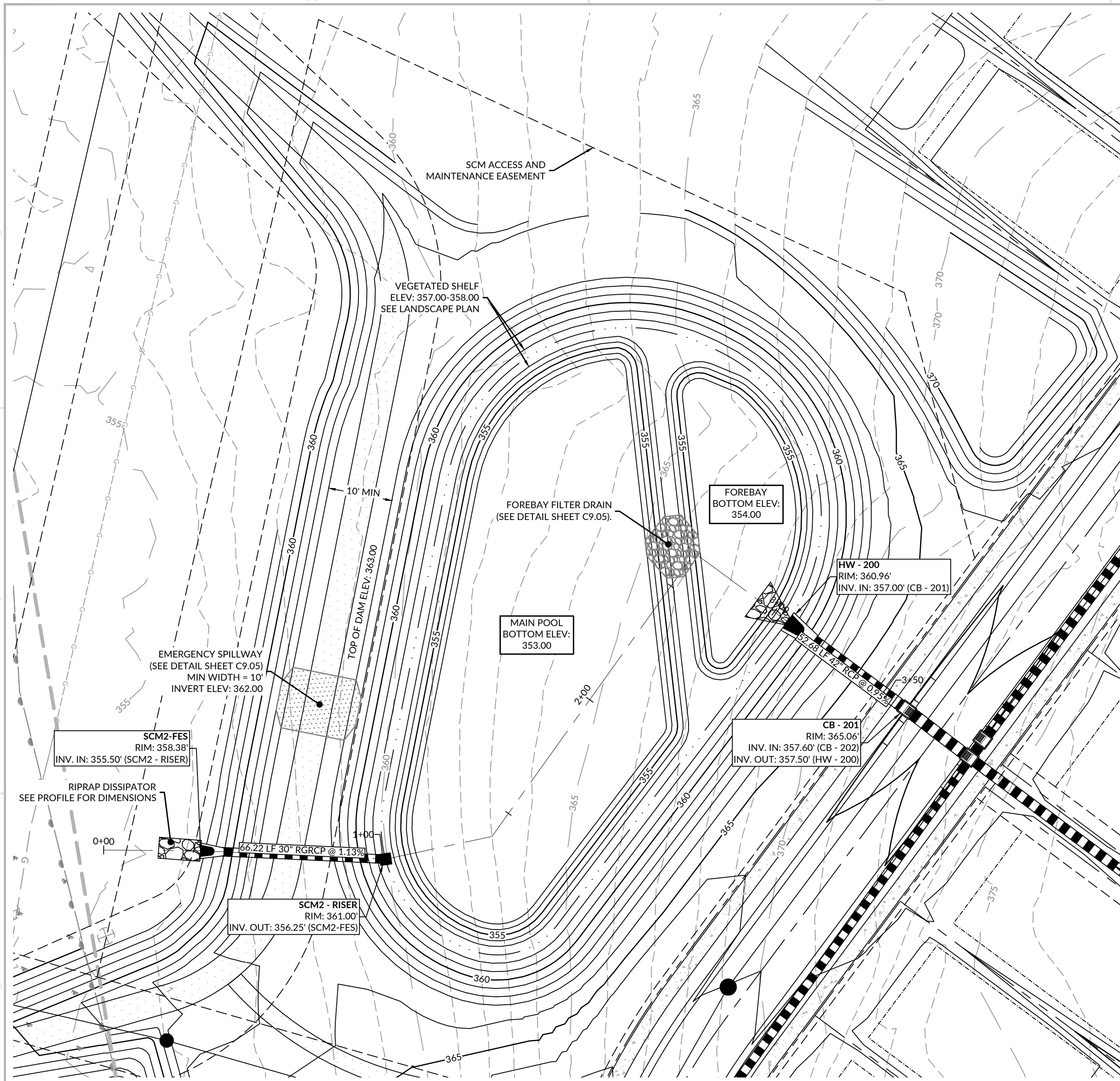
J:\2024\Projects\WasteWater\Assestment\CID Drawings\Construction\CID-24-06 Sewer Outfalls E & F Plan & Profile.dwg Thursday, January 2, 2025 3:31:24 PM TDDOK



NOTE:
 RISER AND BALLAST CONCRETE HAVE BEEN SIZED BASED ON BUOYANCY CALCULATIONS. ADJUSTMENTS TO CONCRETE DIMENSIONS ARE NOT PERMITTED WITHOUT PRIOR WRITTEN APPROVAL. ANY DIMENSIONAL CHANGES TO BALLAST CONCRETE BASE AND RISER MUST BE REQUESTED IN WRITING AND MUST BE ACCOMPANIED BY BUOYANCY CALCULATIONS SIGNED AND SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.

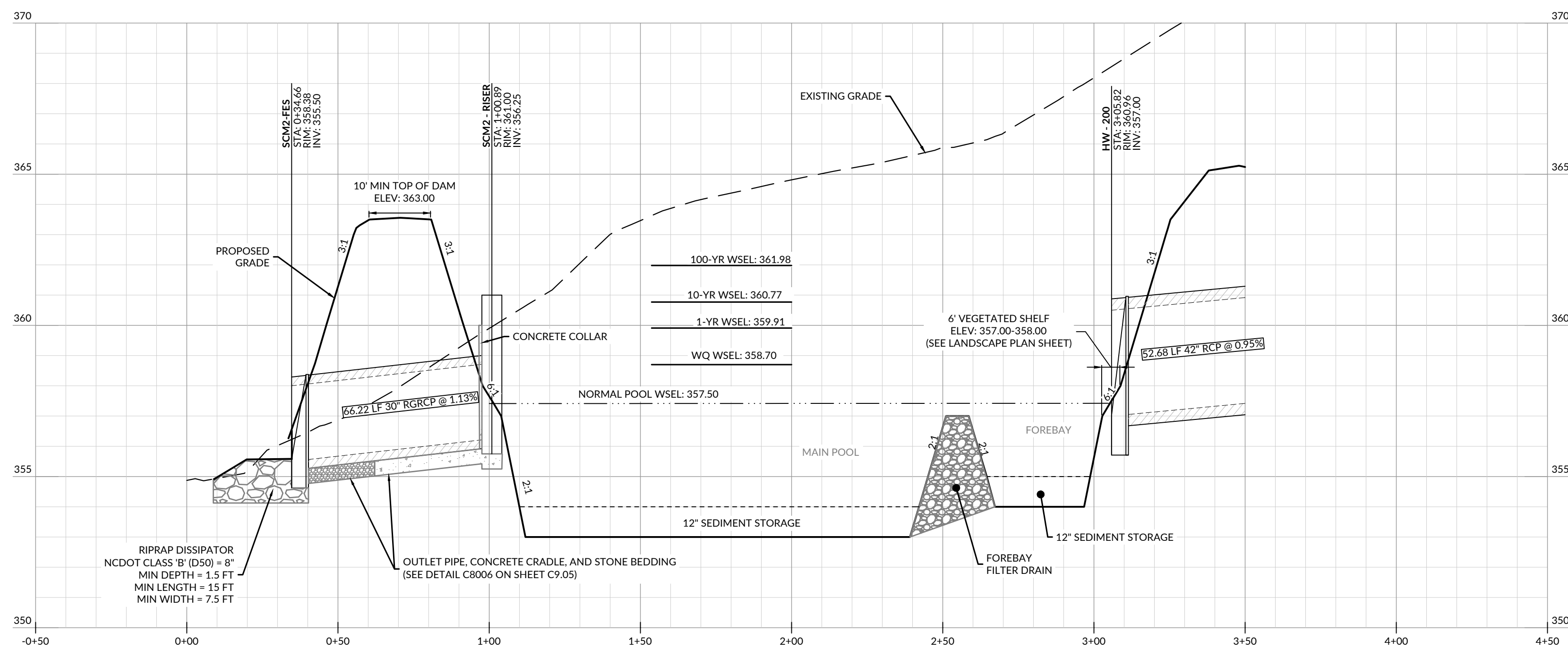
- WET POND STORMWATER CONTROL MEASURE (SCM) GENERAL NOTES:**
- PRIOR TO OR DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES IN THE PLANS OR SPECIFICATIONS.
 - ALL CONSTRUCTION AND MINIMUM DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL STANDARDS AND SPECIFICATIONS, HEREBY INCORPORATED BY REFERENCE.
 - UPON COMPLETION OF CONSTRUCTION, CERTIFICATION OF THE SCM BY THE GEOTECHNICAL ENGINEER WILL BE REQUIRED PRIOR TO FINAL SCM ACCEPTANCE.
 - THE GEOTECHNICAL ENGINEER SHALL EVALUATE SOILS FOR SUITABILITY OF DAM CONSTRUCTION AND SLOPE STABILITY.
 - PRIOR TO PLACEMENT OF EMBANKMENT FILL, THE GEOTECHNICAL ENGINEER SHALL SUPERVISE THE FOUNDATION PREPARATION AND APPROVE THE DEPTH AND EXTENT OF THE CUTOFF TRENCH. A MINIMUM OF 1 FOOT SHALL BE EXCAVATED.
 - THE DAM AND FOREBAY BERMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS UNLESS SUPERCEDED BY THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS:
 - BORROW MATERIALS FOR USE AS EMBANKMENT FILL SHALL BE FREE OF ORGANICS, ROOTS AND OTHER WOODY VEGETATION OR ORGANIC DEBRIS.
 - FILL MATERIALS SHALL CONSIST OF SOILS WHICH CLASSIFY AS SC, SM, CL, CL-CH AND ML IN ACCORDANCE WITH THE UNIFIED CLASSIFICATION SYSTEM OR AS APPROVED BY THE GEOTECHNICAL ENGINEER.
 - FILL MATERIALS SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3 INCHES IN MEAN DIAMETER.
 - FILL SHALL BE PLACED IN 8 INCH (MAXIMUM) LOOSE LIFTS FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT AND IN 4 INCH (MAXIMUM) LOOSE LIFTS FOR MATERIAL COMPACTED BY HAND OPERATED TAMPERS UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE. FILL SHALL BE BROUGHT UP BY BENCHING INTO THE EXISTING SLOPE. A MAXIMUM HEIGHT OF 2 FEET SHALL BE USED FOR EACH BENCH LIFT TAKING CARE TO REMOVE ROOT STRUCTURES AS THE FILL PROCEEDS. THE SURFACE OF EACH LIFT SHALL BE SCARIFIED PRIOR TO PLACEMENT OF THE NEXT LIFT IN ORDER TO EFFECTIVELY TIE THE FILL LIFTS TOGETHER.
 - ALL COMPACTION SHALL BE TESTED BY THE NUCLEAR METHOD (ASTM D-4980) OR SAND CONE METHOD (ASTM D-1556) AT A RATE OF AT LEAST ONE TEST PER 5000 SF PER ONE FOOT OF COMPACTED FILL. THICKNESS IN GENERAL AREA FILLS AND ONE TEST PER 50 LINEAL FEET PER LIFT ALONG THE BARREL.
 - THE MINIMUM COMPACTION SHALL BE A MINIMUM OF 95% OF THE MAXIMUM STANDARD PROCTOR DENSITY (ASTM D-498) AT MOISTURE CONTENTS VARYING FROM 2 PERCENT BELOW TO 3 PERCENT ABOVE OPTIMUM MOISTURE CONTENT DETERMINED BY STANDARD PROCTOR TEST.
 - SUBGRADE FOR THE RISER STRUCTURE AND OUTLET PIPE SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. IF THE GEOTECHNICAL ENGINEER REQUIRES ADDITIONAL SUBGRADE PREPARATION, THE ADDITIONAL COST SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT.
 - THE OUTLET PIPE SHALL BE BEDDED IN CONCRETE FOR 2/3 OF THE PIPE LENGTH, BEGINNING AT THE RISER, AND IN #78 STONE FOR 1/3 OF PIPE LENGTH TO THE OUTLET. SEE DETAILS ON SHEET C9.05.
 - EMBANKMENT AND SIDE SLOPES OF THE BASIN SHALL BE STABILIZED PER SEEDING SCHEDULE ON EROSION CONTROL DETAILS SHEET OR SODDED. SEE LANDSCAPE PLAN ON SHEETS FOR FURTHER PLANTING DETAILS.
 - IF, DURING CONSTRUCTION, THE SCM IS TO BE USED AS AN EROSION CONTROL MEASURE, THE FOREBAY BERMS SHALL NOT BE INSTALLED DURING THE INITIAL CONSTRUCTION OR WHILE THE SCM IS USED AS AN EROSION CONTROL MEASURE.
 - UNLESS OTHERWISE NOTED, ALL PERMANENT STRUCTURES (e.g. RISER/BARREL, WEIR WALLS, ETC.) ARE TO BE INSTALLED WITH THE INITIAL DAM CONSTRUCTION.
 - FOR SITE BUILT FEATURES (e.g. WEIR WALLS, DROP STRUCTURES, BRIDGES, ETC.), THE CONTRACTOR SHALL PROVIDE STRUCTURAL DRAWINGS TO BE SIGNED AND SEALED BY A NC PROFESSIONAL ENGINEER AND TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
 - PRIOR TO FINAL GRADING OF THE SCM, THE CONTRACTOR SHALL PROVIDE SUFFICIENT AS-BUILT SURVEY INFORMATION TO CONFIRM THAT THE FINISHED SCM WILL MEET THE SPECIFIC DIMENSIONAL REQUIREMENTS APPLICABLE TO THE SCM. THOSE REQUIREMENTS INCLUDE:
 - POND BOTTOM ELEVATION = 353.00 FT
 - DRAWDOWN OVERFLOW ELEVATION (NORMAL POOL) = 357.50 FT
 - MINIMUM SURFACE AREA AT NORMAL POOL ELEVATION = 10,410 SF
 - MINIMUM VOLUME REQUIRED FOR WATER QUALITY = 13,493 CF
 - PROVIDED VOLUME FOR WATER QUALITY = 37,342 CF
 - WEIR CREST ELEVATION = 360.41 FT
 - RISER CREST ELEVATION = 361.00 FT
 - LOW POINT TOP OF EMBANKMENT (AUXILIARY SPILLWAY) = 362.50 FT
 - AVERAGE TOP OF EMBANKMENT = 363.50 FT
 - ELEVATIONS SHALL BE WITHIN 0.1 FEET OF THE ABOVE ELEVATIONS FOR EARTHWORK, AND 0.05 FEET FOR OUTLET STRUCTURE. ALL SURFACE AREAS ARE THE MINIMUM AREAS. REQUEST FOR A REDUCTIONS IN THE MINIMUM VALUES WILL BE CONSIDERED ON A CASE BY CASE BASIS.
 - ONCE THE PROJECT SITE HAS BEEN STABILIZED, CONTRACTOR SHALL OBTAIN APPROVAL BY EROSION CONTROL INSPECTOR IN ORDER TO REMOVE TEMPORARY EROSION CONTROL DEVICES.
 - ONCE ALL SEDIMENT AND EROSION CONTROL DEVICES HAVE BEEN REMOVED, THE SCM SHALL BE CONVERTED TO A PERMANENT SCM.
 - ALL SEDIMENT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
 - FOREBAY AND VEGETATED SHELF SHALL BE CONSTRUCTED AS SHOWN ON THE PLAN.
 - VEGETATED SHELF SHALL BE PLANTED PER PLANT SCHEDULE ON LANDSCAPE PLAN (SEE LITTLE DIVERSIFIED ARCHITECTS).
 - FINAL CERTIFICATION OF THE SCM BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED IS REQUIRED.
- CLAY LINER SPECIFICATIONS:**
 THE CONTRACTOR SHALL INSTALL A CLAY LINER TO MAINTAIN A PERMANENT POOL AT THE DESIGN ELEVATION. IF THE SITE GEOTECHNICAL ENGINEER DETERMINES THAT THE EXISTING SITE CONDITIONS (SOIL PROPERTIES, EXISTING WATER TABLE, ETC.) INDICATE THAT NORMAL POOL CAN BE MAINTAINED WITHOUT A CLAY LINER, THE GEOTECHNICAL ENGINEER WILL PROVIDE NOTICE IN WRITING TO THE PROJECT ENGINEER THAT THE CLAY LINER IS NOT REQUIRED. IF THE CLAY LINER IS NOT INSTALLED, THE OWNER SHALL RECEIVE A CREDIT FOR THE DELETION OF THE LINER.
- AT A MINIMUM, THE CLAY LINER MATERIAL FOR THE WET POND SHALL MEET THE FOLLOWING SPECIFICATIONS:
- UNIFIED SOIL CLASSIFICATION SYSTEM DESIGNATION OF CL, CH, ML, OR SC
 - MINIMUM OF 40% PASSING #200 SIEVE
 - MINIMUM PLASTICITY INDEX OF 12
 - MAXIMUM PERMEABILITY OF 1×10^{-3} cm/sec
 - A MINIMUM OF 3 TESTS OF EACH ABOVE PARAMETER SHALL BE PROVIDED FROM AN APPROVED LABORATORY ON THE LINER MATERIAL AND PRESENTED TO THE ENGINEER FOR APPROVAL PRIOR TO PLACEMENT OF THE MATERIAL.
 - COMPACTION TO A MINIMUM OF 95% OF THE MAXIMUM STANDARD PROCTOR DENSITY (ASTM D-698), AND WITHIN 3% OF THE OPTIMUM MOISTURE CONTENT (MINIMUM OF 1 COMPACTION DENSITY TEST PER 2500 SQUARE FEET).
- AN IN-PLACE MAXIMUM INFILTRATION RATE OF 0.01 INCHES PER HOUR.**
- RECOMMENDATIONS OF THE SITE GEOTECHNICAL ENGINEER MAY SUPERCEDE THE ABOVE SPECIFICATIONS.**
- THE CLAY LINER SHALL BE PLACED UNDER THE BOTTOM OF THE SCM PERMANENT POOL TO A MINIMUM THICKNESS OF 8 INCHES. A MINIMUM OF 4 INCHES OF TOPSOIL SHALL BE PLACED ABOVE THE CLAY LINER TO THE FINISHED GRADE AS SHOWN ON THE DRAWINGS AND/OR DETAILS. CARE SHALL BE TAKEN WHEN PLACING THE TOPSOIL SO AS NOT TO DAMAGE THE CLAY LINER. A CLAY SOIL, NO ORGANICS, MIXTURE MAY BE USED IF THE ABOVE SPECIFICATIONS ARE SATISFIED AND WITH WRITTEN APPROVAL BY THE GEOTECHNICAL ENGINEER.**
- PRECAST CONCRETE MATERIALS NOTES:**
- ALL PRECAST CONCRETE STRUCTURES SHALL CONFORM TO ASTM C913 (RECTANGULAR) OR C478 (ROUND).
 - ALL REINFORCED CONCRETE PIPE SHALL CONFORM TO ASTM C76, CLASS III (UNLESS OTHERWISE NOTED).
 - O-RING JOINTS (RGRCP) SHALL CONFORM TO ASTM C443 & ASTM C361.
 - NON O-RING JOINTS (RCP) SHALL CONFORM TO ASTM C990.





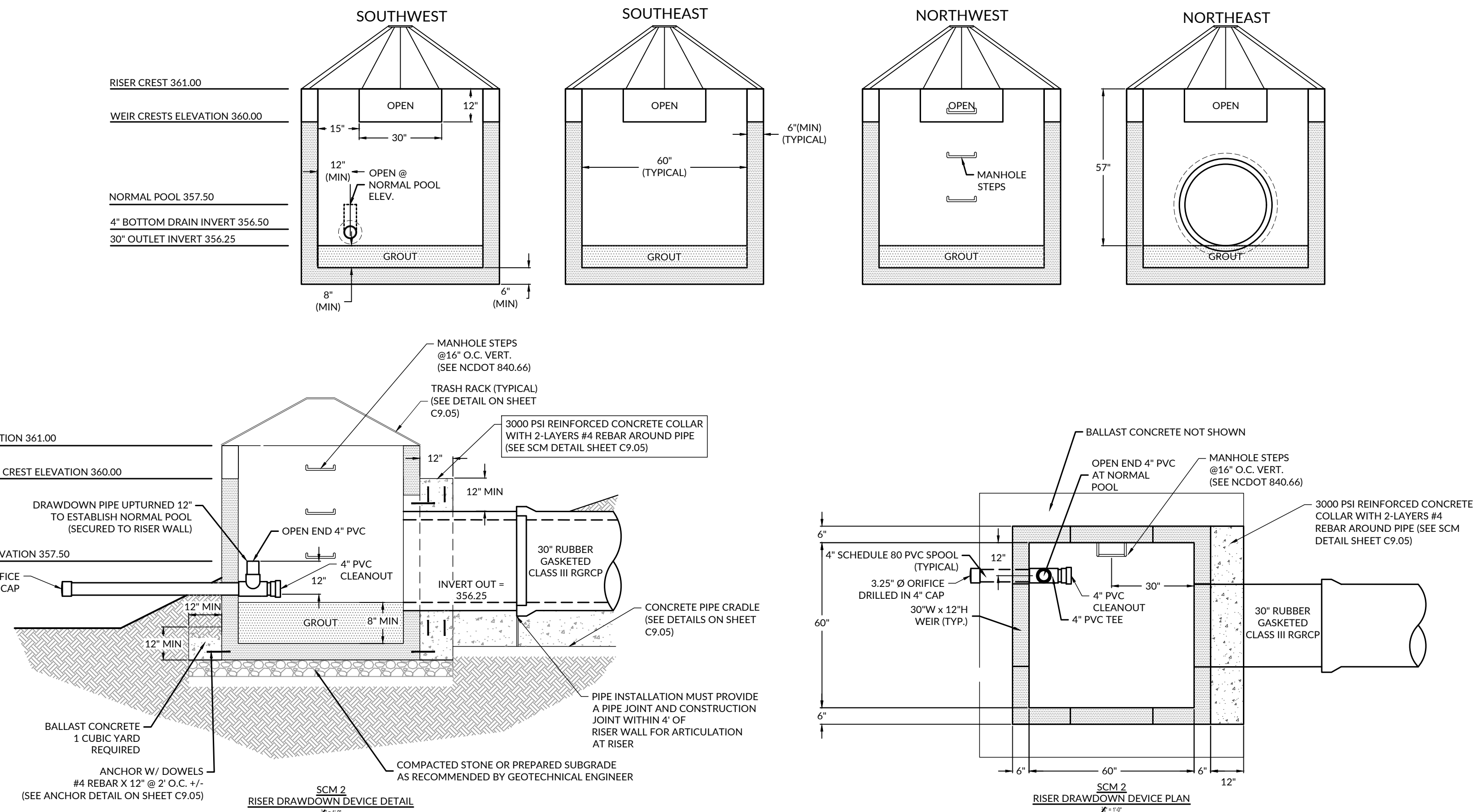
WET POND SCM #2 PLAN VIEW

SCALE: 1" = 30'



WET POND SCM #2 PROFILE VIEW

SCALE: 1" = 30' HORIZONTAL, 1" = 3' VERTICAL



NOTE:
RISER AND BALLAST CONCRETE HAVE BEEN SIZED BASED ON BUOYANCY CALCULATIONS. ADJUSTMENTS TO CONCRETE DIMENSIONS ARE NOT PERMITTED WITHOUT PRIOR WRITTEN APPROVAL. ANY DIMENSIONAL CHANGES TO BALLAST CONCRETE BASE AND RISER MUST BE REQUESTED IN WRITING AND MUST BE ACCOMPANIED BY BUOYANCY CALCULATIONS SIGNED AND SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.

WET POND STORMWATER CONTROL MEASURE (SCM) GENERAL NOTES:

- PRIOR TO OR DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES IN THE PLANS OR SPECIFICATIONS.
- ALL CONSTRUCTION AND MINIMUM DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL STANDARDS AND SPECIFICATIONS, HEREBY INCORPORATED BY REFERENCE.
- UPON COMPLETION OF CONSTRUCTION, CERTIFICATION OF THE SCM BY THE GEOTECHNICAL ENGINEER WILL BE REQUIRED PRIOR TO FINAL SCM ACCEPTANCE.
- THE GEOTECHNICAL ENGINEER SHALL EVALUATE SOILS FOR SUITABILITY OF DAM CONSTRUCTION AND SLOPE STABILITY.
- PRIOR TO PLACEMENT OF EMBANKMENT FILL, THE GEOTECHNICAL ENGINEER SHALL SUPERVISE THE FOUNDATION PREPARATION AND APPROVE THE DEPTH AND EXTENT OF THE CUTOFF TRENCH; A MINIMUM OF 1 FOOT SHALL BE EXCAVATED.
- THE DAM AND FOREBAY BERMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS UNLESS SUPERCEDED BY THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
 - BORROW MATERIALS FOR USE AS EMBANKMENT FILL SHALL BE FREE OF ORGANICS, ROOTS AND OTHER WOODY VEGETATION OR ORGANIC DEBRIS.
 - FILL MATERIALS SHALL CONSIST OF SOILS WHICH CLASSIFY AS SC, SM, CL, CH AND ML IN ACCORDANCE WITH THE UNIFIED CLASSIFICATION SYSTEM OR AS APPROVED BY THE GEOTECHNICAL ENGINEER.
 - FILL MATERIALS SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3 INCHES IN MEAN DIAMETER.
 - FILL SHALL BE PLACED IN 8 INCH (MAXIMUM) LOOSE LIFTS FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT AND IN 4 INCH (MAXIMUM) LOOSE LIFTS FOR MATERIAL COMPACTED BY HAND OPERATED TAMPERS UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE. FILL SHALL BE BROUGHT UP BY BENCHING INTO THE EXISTING SLOPE. A MAXIMUM HEIGHT OF 2 FEET SHALL BE USED FOR EACH BENCH LIFT TAKING CARE TO REMOVE ROOT STRUCTURES AS THE FILL PROCEEDS. THE SURFACE OF EACH LIFT SHALL BE SCARIFIED PRIOR TO PLACEMENT OF THE NEXT LIFT IN ORDER TO EFFECTIVELY TIE THE FILL LIFTS TOGETHER.
 - ALL COMPACTION SHALL BE TESTED BY THE NUCLEAR METHOD (ASTM D-6938) OR SAND CONE METHOD (ASTM D-1556) AT A RATE OF AT LEAST ONE TEST PER 5000 SF PER ONE FOOT OF COMPACTED FILL THICKNESS IN GENERAL AREA FILLS AND ONE TEST PER 50 LINEAL FEET PER LIFT ALONG THE BARREL.
 - THE MINIMUM COMPACTION SHALL BE A MINIMUM OF 95% OF THE MAXIMUM STANDARD PROCTOR DENSITY (ASTM D-698) AT MOISTURE CONTENTS VARYING FROM 2 PERCENT BELOW TO 3 PERCENT ABOVE OPTIMUM MOISTURE CONTENT DETERMINED BY STANDARD PROCTOR TEST.
- SUBGRADE FOR THE RISER STRUCTURE AND OUTLET PIPE SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. IF THE GEOTECHNICAL ENGINEER REQUIRES ADDITIONAL SUBGRADE PREPARATION, THE ADDITIONAL COST SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT.
- THE OUTLET PIPE SHALL BE BEDDED IN CONCRETE FOR 2/3 OF THE PIPE LENGTH, BEGINNING AT THE RISER, AND IN #7 STONE FOR 1/3 OF PIPE LENGTH TO THE OUTLET. SEE DETAILS ON SHEET C9.05.
- EMBANKMENT AND SIDE SLOPES OF THE BASIN SHALL BE STABILIZED PER SEEDING SCHEDULE ON EROSION CONTROL DETAILS SHEET OR SODDED. SEE LANDSCAPE PLAN ON SHEETS FOR FURTHER PLANTING DETAILS.
- IF, DURING CONSTRUCTION, THE SCM IS TO BE USED AS AN EROSION CONTROL MEASURE, THE FOREBAY (BERMS) SHALL NOT BE INSTALLED DURING THE INITIAL CONSTRUCTION OR WHILE THE SCM IS USED AS AN EROSION CONTROL MEASURE.

- UNLESS OTHERWISE NOTED, ALL PERMANENT STRUCTURES (E.G. RISER, BARREL, WEIR WALLS, ETC.) ARE TO BE INSTALLED WITH THE INITIAL DAM CONSTRUCTION.
- FOR SITE BUILT FEATURES (E.G. WEIR WALLS, DROP STRUCTURES, BRIDGES, ETC.), THE CONTRACTOR SHALL PROVIDE STRUCTURAL DRAWINGS TO BE SIGNED AND SEALED BY A NC PROFESSIONAL ENGINEER AND TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
- PRIOR TO FINAL GRADING OF THE SCM, THE CONTRACTOR SHALL PROVIDE SUFFICIENT AS-BUILT SURVEY INFORMATION TO CONFIRM THAT THE FINISHED SCM WILL MEET THE SPECIFIC DIMENSIONAL REQUIREMENTS APPLICABLE TO THE SCM. THOSE REQUIREMENTS INCLUDE:
 - POND BOTTOM ELEVATION = 353.00 FT
 - DRAWDOWN OVERFLOW ELEVATION (NORMAL POOL) = 357.50 FT
 - MINIMUM SURFACE AREA AT NORMAL POOL ELEVATION = 23,322 SF
 - MINIMUM VOLUME REQUIRED FOR WATER QUALITY = 30,399 CF
 - PROVIDED VOLUME FOR WATER QUALITY = 66,090 CF
 - WEIR CREST ELEVATION = 360.00 FT
 - RISER CREST ELEVATION = 361.00 FT
 - LOW POINT TOP OF EMBANKMENT (AUXILIARY SPILLWAY) = 362.00 FT
 - AVERAGE TOP OF EMBANKMENT = 363.00 FT
- ELEVATIONS SHALL BE WITHIN 0.1 FEET OF THE ABOVE ELEVATIONS FOR EARTHWORK, AND 0.05 FEET FOR OUTLET STRUCTURE. ALL SURFACE AREAS ARE THE MINIMUM AREAS. REQUEST FOR A REDUCTIONS IN THE MINIMUM VALUES WILL BE CONSIDERED ON A CASE BY CASE BASIS.
- ONCE THE PROJECT SITE HAS BEEN STABILIZED, CONTRACTOR SHALL OBTAIN APPROVAL BY EROSION CONTROL INSPECTOR IN ORDER TO REMOVE TEMPORARY EROSION CONTROL DEVICES.
 - ONCE ALL SEDIMENT AND EROSION CONTROL DEVICES HAVE BEEN REMOVED, THE SCM SHALL BE CONVERTED TO A PERMANENT SCM.
 - ALL SEDIMENT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
 - FOREBAY AND VEGETATED SHELF SHALL BE CONSTRUCTED AS SHOWN ON THE PLAN.
 - VEGETATED SHELF SHALL BE PLANTED PER PLANT SCHEDULE ON LANDSCAPE PLAN (SEE LITTLE DIVERSIFIED ARCHITECTS).
- FINAL CERTIFICATION OF THE SCM BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED IS REQUIRED.

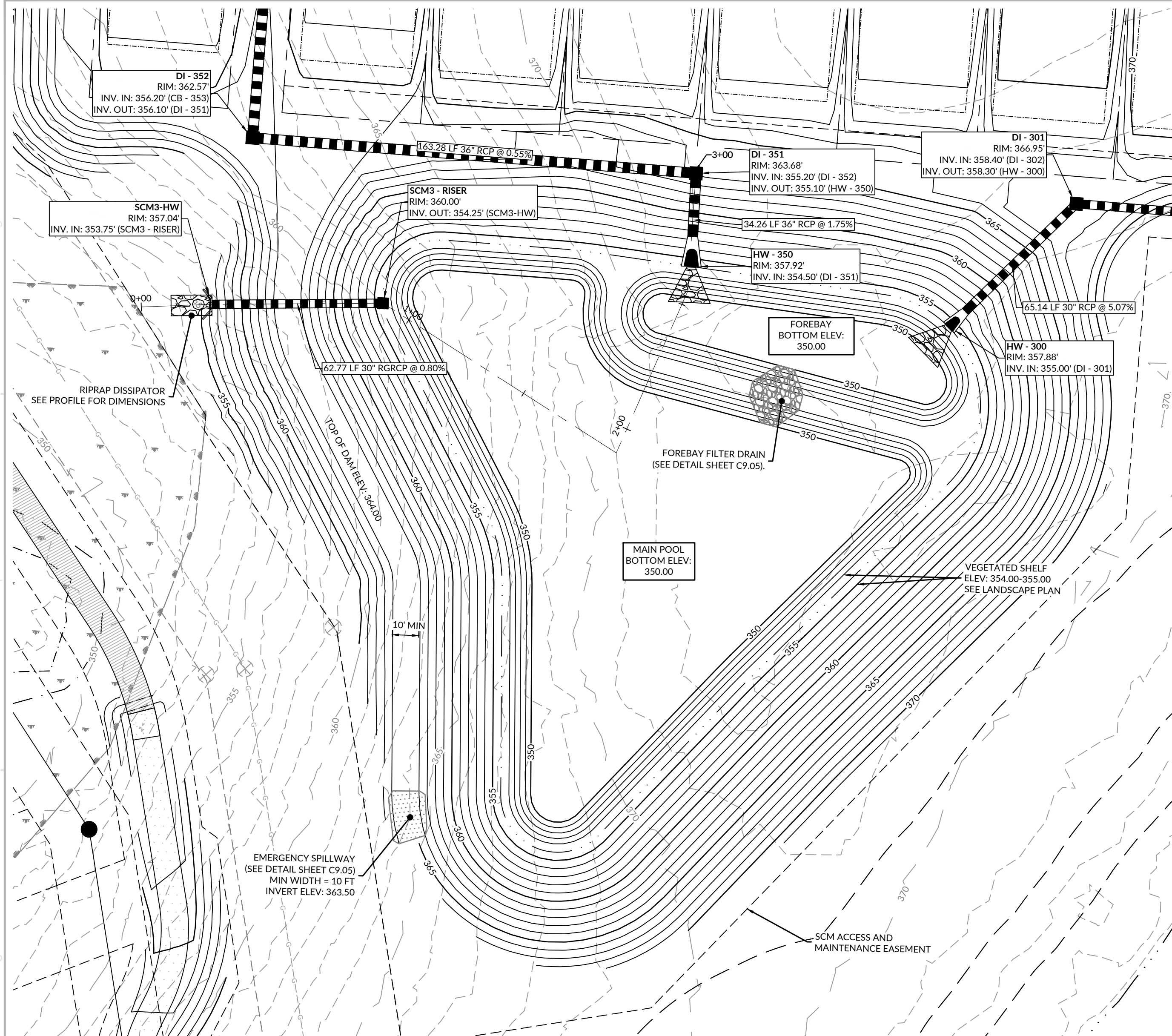
CLAY LINER SPECIFICATIONS:

- THE CONTRACTOR SHALL INSTALL A CLAY LINER TO MAINTAIN A PERMANENT POOL AT THE DESIGN ELEVATION. IF THE SITE GEOTECHNICAL ENGINEER DETERMINES THAT THE EXISTING SITE CONDITIONS (SOIL PROPERTIES, EXISTING WATER TABLE, ETC.) INDICATE THAT NORMAL POOL CAN BE MAINTAINED WITHOUT A CLAY LINER, THE GEOTECHNICAL ENGINEER WILL PROVIDE NOTICE IN WRITING TO THE PROJECT ENGINEER THAT THE CLAY LINER IS NOT REQUIRED. IF THE CLAY LINER IS NOT INSTALLED, THE OWNER SHALL RECEIVE A CREDIT FOR THE DELETION OF THE LINER.
- AT A MINIMUM, THE CLAY LINER MATERIAL FOR THE WET POND SHALL MEET THE FOLLOWING SPECIFICATIONS:
- UNIFIED SOIL CLASSIFICATION SYSTEM DESIGNATION OF CL, CH, ML OR SC
 - MINIMUM OF 40% PASSING #200 SIEVE
 - MINIMUM PLASTICITY INDEX OF 12
 - MAXIMUM PERMEABILITY OF 1×10^{-10} cm/sec
 - A MINIMUM OF 2 TESTS OF EACH ABOVE PARAMETER SHALL BE PROVIDED FROM AN APPROVED LABORATORY ON THE LINER MATERIAL AND PRESENTED TO THE ENGINEER FOR APPROVAL PRIOR TO PLACEMENT OF THE MATERIAL.

- COMPACTION TO A MINIMUM OF 95% OF THE MAXIMUM STANDARD PROCTOR DENSITY (ASTM D-698), AND WITHIN 3% OF THE OPTIMUM MOISTURE CONTENT (MINIMUM OF 1 COMPACTION DENSITY TEST PER 2500 SQUARE FEET).
 - AN IN-PLACE MAXIMUM INFILTRATION RATE OF 0.01 INCHES PER HOUR.
 - RECOMMENDATIONS OF THE SITE GEOTECHNICAL ENGINEER MAY SUPERCEDE THE ABOVE SPECIFICATIONS.
- THE CLAY LINER SHALL BE PLACED UNDER THE BOTTOM OF THE SCM PERMANENT POOL TO A MINIMUM THICKNESS OF 8 INCHES. A MINIMUM OF 4 INCHES OF TOPSOIL SHALL BE PLACED ABOVE THE CLAY LINER TO THE FINISHED GRADE AS SHOWN ON THE DRAWINGS AND/OR DETAILS. CARE SHALL BE TAKEN WHEN PLACING THE TOPSOIL SO AS NOT TO DAMAGE THE CLAY LINER. A CLAY/SOIL, NO ORGANICS, MIXTURE MAY BE USED IF THE ABOVE SPECIFICATIONS ARE SATISFIED AND WITH WRITTEN APPROVAL BY THE GEOTECHNICAL ENGINEER.

PRECAST CONCRETE MATERIALS NOTES:

- ALL PRECAST CONCRETE STRUCTURES SHALL CONFORM TO ASTM C913 (RECTANGULAR) OR C478 (ROUND).
- ALL REINFORCED CONCRETE PIPE SHALL CONFORM TO ASTM C76, CLASS III (UNLESS OTHERWISE NOTED).
 - O-RING JOINTS (RGRCP) SHALL CONFORM TO ASTM C443 & ASTM C361.
 - NON O-RING JOINTS (RCP) SHALL CONFORM TO ASTM C990



WET POND SCM #3 PLAN VIEW

SCALE: 1" = 30'

WET POND STORMWATER CONTROL MEASURE (SCM) GENERAL NOTES:

- PRIOR TO OR DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES IN THE PLANS OR SPECIFICATIONS.
- ALL CONSTRUCTION AND MINIMUM DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL STANDARDS AND SPECIFICATIONS, HEREBY INCORPORATED BY REFERENCE.
- UPON COMPLETION OF CONSTRUCTION, CERTIFICATION OF THE SCM BY THE GEOTECHNICAL ENGINEER WILL BE REQUIRED PRIOR TO FINAL SCM ACCEPTANCE.
- THE GEOTECHNICAL ENGINEER SHALL EVALUATE SOILS FOR SUITABILITY OF DAM CONSTRUCTION AND SLOPE STABILITY.
- PRIOR TO PLACEMENT OF EMBANKMENT FILL, THE GEOTECHNICAL ENGINEER SHALL SUPERVISE THE FOUNDATION PREPARATION AND APPROVE THE DEPTH AND EXTENT OF THE CUTOFF TRENCH, A MINIMUM OF 1 FOOT SHALL BE EXCAVATED.
- THE DAM AND FOREBAY BERMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS UNLESS SUPERCEDED BY THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS:
 - BORROW MATERIALS FOR USE AS EMBANKMENT FILL SHALL BE FREE OF ORGANICS, ROOTS AND OTHER WOODY VEGETATION OR ORGANIC DEBRIS.
 - FILL MATERIALS SHALL CONSIST OF SOILS WHICH CLASSIFY AS SC, SM, CL, CL-CH AND ML IN ACCORDANCE WITH THE UNIFIED CLASSIFICATION SYSTEM OR AS APPROVED BY THE GEOTECHNICAL ENGINEER.
 - FILL MATERIALS SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3 INCHES IN MEAN DIAMETER.
 - FILL SHALL BE PLACED IN 8 INCH (MAXIMUM) LOOSE LIFTS FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT AND IN 4 INCH (MAXIMUM) LOOSE LIFTS FOR MATERIAL COMPACTED BY HAND OPERATED TAMPERS UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE. FILL SHALL BE BROUGHT UP BY BENCHING INTO THE EXISTING SLOPE. A MAXIMUM HEIGHT OF 2 FEET SHALL BE USED FOR EACH BENCH LIFT TAKING CARE TO REMOVE ROOT STRUCTURES AS THE FILL PROCEEDS. THE SURFACE OF EACH LIFT SHALL BE SCARIFIED PRIOR TO PLACEMENT OF THE NEXT LIFT IN ORDER TO EFFECTIVELY TIE THE FILL LIFTS TOGETHER.
 - ALL COMPACTION SHALL BE TESTED BY THE NUCLEAR METHOD (ASTM D-6938) OR SAND CONE METHOD (ASTM D-1556) AT A RATE OF AT LEAST ONE TEST PER 5,000 SF PER ONE FOOT OF COMPACTED FILL THICKNESS IN GENERAL AREA FILLS AND ONE TEST PER 50 LINEAL FEET PER LIFT ALONG THE BARREL.
 - THE MINIMUM COMPACTION SHALL BE A MINIMUM OF 95% OF THE MAXIMUM STANDARD PROCTOR DENSITY (ASTM D-698) AT MOISTURE CONTENTS VARYING FROM 2 PERCENT BELOW TO 3 PERCENT ABOVE OPTIMUM MOISTURE CONTENT DETERMINED BY STANDARD PROCTOR TEST.
- SUBGRADE FOR THE RISER STRUCTURE AND OUTLET PIPE SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. IF THE GEOTECHNICAL ENGINEER REQUIRES ADDITIONAL SUBGRADE PREPARATION, THE ADDITIONAL COST SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT.
- THE OUTLET PIPE SHALL BE BEDDED IN CONCRETE FOR 2/3 OF THE PIPE LENGTH, BEGINNING AT THE RISER, AND IN #78 STONE FOR 1/3 OF PIPE LENGTH TO THE OUTLET. SEE DETAILS ON SHEET C9.05.
- EMBANKMENT AND SIDE SLOPES OF THE BASIN SHALL BE STABILIZED PER SEEDING SCHEDULE ON EROSION CONTROL DETAILS SHEET OR SODDED. SEE LANDSCAPE PLAN ON SHEETS FOR FURTHER PLANTING DETAILS.
- IF, DURING CONSTRUCTION, THE SCM IS TO BE USED AS AN EROSION CONTROL MEASURE, THE FOREBAY BERMS SHALL NOT BE INSTALLED DURING THE INITIAL CONSTRUCTION OR WHILE THE SCM IS USED AS AN EROSION CONTROL MEASURE.
- UNLESS OTHERWISE NOTED, ALL PERMANENT STRUCTURES (e.g. RISER/BARREL, WEIR WALLS, ETC.) ARE TO BE INSTALLED WITH THE INITIAL DAM CONSTRUCTION.
- FOR SITE BUILT FEATURES (e.g. WEIR WALLS, DROP STRUCTURES, BRIDGES, ETC.), THE CONTRACTOR SHALL PROVIDE STRUCTURAL DRAWINGS TO BE SIGNED AND SEALED BY A NC PROFESSIONAL ENGINEER AND TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

- PRIOR TO FINAL GRADING OF THE SCM, THE CONTRACTOR SHALL PROVIDE SUFFICIENT AS-BUILT SURVEY INFORMATION TO CONFIRM THAT THE FINISHED SCM WILL MEET THE SPECIFIC DIMENSIONAL REQUIREMENTS APPLICABLE TO THE SCM. THOSE REQUIREMENTS INCLUDE:
 - POND BOTTOM ELEVATION = 350.00 FT
 - DRAWDOWN OVERFLOW ELEVATION (NORMAL POOL) = 354.50 FT
 - MINIMUM SURFACE AREA AT NORMAL POOL ELEVATION = 28,902 SF
 - MINIMUM VOLUME REQUIRED FOR WATER QUALITY = 22,816 CF
 - PROVIDED VOLUME FOR WATER QUALITY = 91,063 CF
 - RECTANGULAR ORIFICE ELEVATION = 357.25 FT
 - RISER CREST ELEVATION = 360.00 FT
 - LOW POINT TOP OF EMBANKMENT (AUXILIARY SPILLWAY) = 363.50 FT
 - AVERAGE TOP OF EMBANKMENT = 364.00 FT
- ELEVATIONS SHALL BE WITHIN 0.1 FEET OF THE ABOVE ELEVATIONS FOR EARTHWORK, AND 0.05 FEET FOR OUTLET STRUCTURE. ALL SURFACE AREAS ARE THE MINIMUM AREAS. REQUEST FOR A REDUCTIONS IN THE MINIMUM VALUES WILL BE CONSIDERED ON A CASE BY CASE BASIS.
- ONCE THE PROJECT SITE HAS BEEN STABILIZED, CONTRACTOR SHALL OBTAIN APPROVAL BY EROSION CONTROL INSPECTOR IN ORDER TO REMOVE TEMPORARY EROSION CONTROL DEVICES.
 - ONCE ALL SEDIMENT AND EROSION CONTROL DEVICES HAVE BEEN REMOVED, THE SCM SHALL BE CONVERTED TO A PERMANENT SCM.
 - ALL SEDIMENT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
 - FOREBAY AND VEGETATED SHELF SHALL BE CONSTRUCTED AS SHOWN ON THE PLAN.
 - VEGETATED SHELF SHALL BE PLANTED PER PLANT SCHEDULE ON LANDSCAPE PLAN (SEE LITTLE DIVERSIFIED ARCHITECTS).
- FINAL CERTIFICATION OF THE SCM BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED IS REQUIRED.

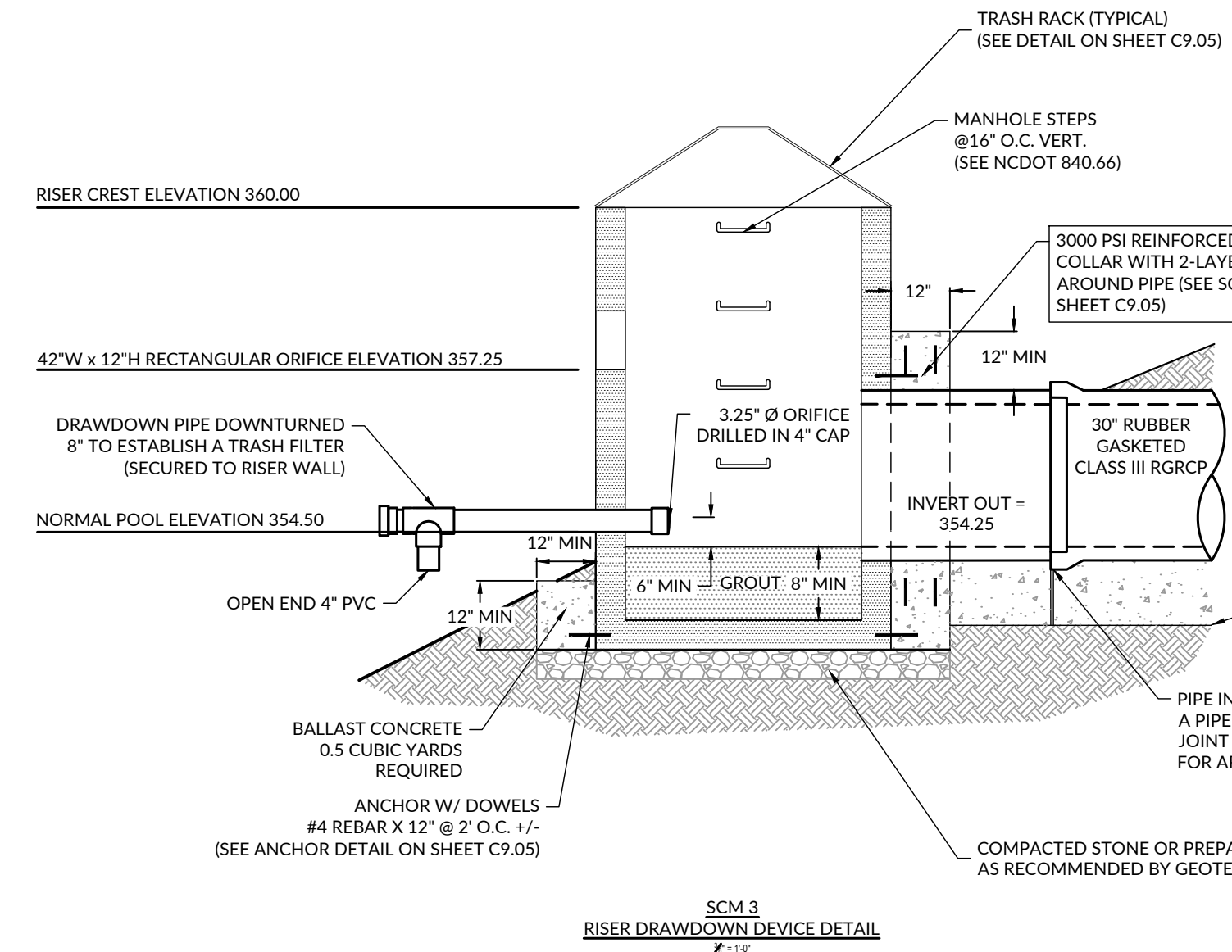
CLAY LINER SPECIFICATIONS:

- THE CONTRACTOR SHALL INSTALL A CLAY LINER TO MAINTAIN A PERMANENT POOL AT THE DESIGN ELEVATION. IF THE SITE GEOTECHNICAL ENGINEER DETERMINES THAT THE EXISTING SITE CONDITIONS (SOIL PROPERTIES, EXISTING WATER TABLE, ETC.) INDICATE THAT NORMAL POOL CAN BE MAINTAINED WITHOUT A CLAY LINER, THE GEOTECHNICAL ENGINEER WILL PROVIDE NOTICE IN WRITING TO THE PROJECT ENGINEER THAT THE CLAY LINER IS NOT REQUIRED. IF THE CLAY LINER IS NOT INSTALLED, THE OWNER SHALL RECEIVE A CREDIT FOR THE DELETION OF THE LINER.
- AT A MINIMUM, THE CLAY LINER MATERIAL FOR THE WET POND SHALL MEET THE FOLLOWING SPECIFICATIONS:
- UNIFIED SOIL CLASSIFICATION SYSTEM DESIGNATION OF CL, CH, ML OR SC
 - MINIMUM OF 40% PASSING #200 SIEVE
 - MINIMUM PLASTICITY INDEX OF 12
 - MAXIMUM PERMEABILITY OF 1×10^{-9} cm/sec
 - A MINIMUM OF 2 TESTS OF EACH ABOVE PARAMETER SHALL BE PROVIDED FROM AN APPROVED LABORATORY ON THE LINER MATERIAL AND PRESENTED TO THE ENGINEER FOR APPROVAL PRIOR TO PLACEMENT OF THE MATERIAL.
 - COMPACTION TO A MINIMUM OF 95% OF THE MAXIMUM STANDARD PROCTOR DENSITY (ASTM D-698), AND WITHIN 3% OF THE OPTIMUM MOISTURE CONTENT (MINIMUM OF 1 COMPACTION DENSITY TEST PER 2500 SQUARE FEET).
 - AN IN-PLACE MAXIMUM INFILTRATION RATE OF 0.01 INCHES PER HOUR.
 - RECOMMENDATIONS OF THE SITE GEOTECHNICAL ENGINEER MAY SUPERCEDE THE ABOVE SPECIFICATIONS.
- THE CLAY LINER SHALL BE PLACED UNDER THE BOTTOM OF THE SCM PERMANENT POOL TO A MINIMUM THICKNESS OF 8 INCHES. A MINIMUM OF 4 INCHES OF TOPSOIL

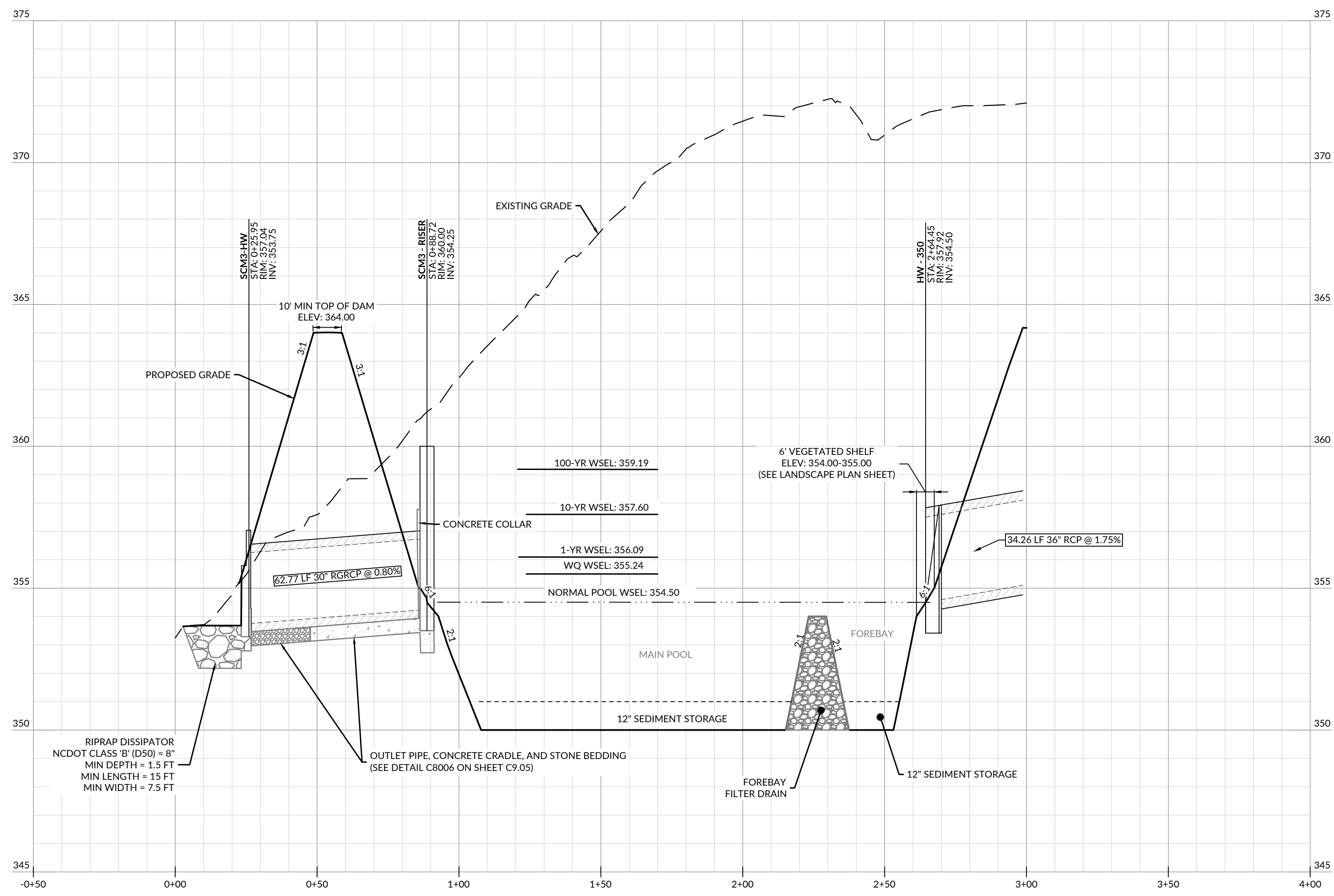
SHALL BE PLACED ABOVE THE CLAY LINER TO THE FINISHED GRADE AS SHOWN ON THE DRAWINGS AND/OR DETAILS. CARE SHALL BE TAKEN WHEN PLACING THE TOPSOIL SO AS NOT TO DAMAGE THE CLAY LINER. A CLAY/SOIL, NO ORGANICS, MIXTURE MAY BE USED IF THE ABOVE SPECIFICATIONS ARE SATISFIED AND WITH WRITTEN APPROVAL BY THE GEOTECHNICAL ENGINEER.

PRECAST CONCRETE MATERIALS NOTES:

- ALL PRECAST CONCRETE STRUCTURES SHALL CONFORM TO ASTM C913 (RECTANGULAR) OR C478 (ROUND).
- ALL REINFORCED CONCRETE PIPE SHALL CONFORM TO ASTM C76, CLASS III (UNLESS OTHERWISE NOTED).
 - O-RING JOINTS (RGRCP) SHALL CONFORM TO ASTM C443 & ASTM C361.
 - NON O-RING JOINTS (RCP) SHALL CONFORM TO ASTM C990

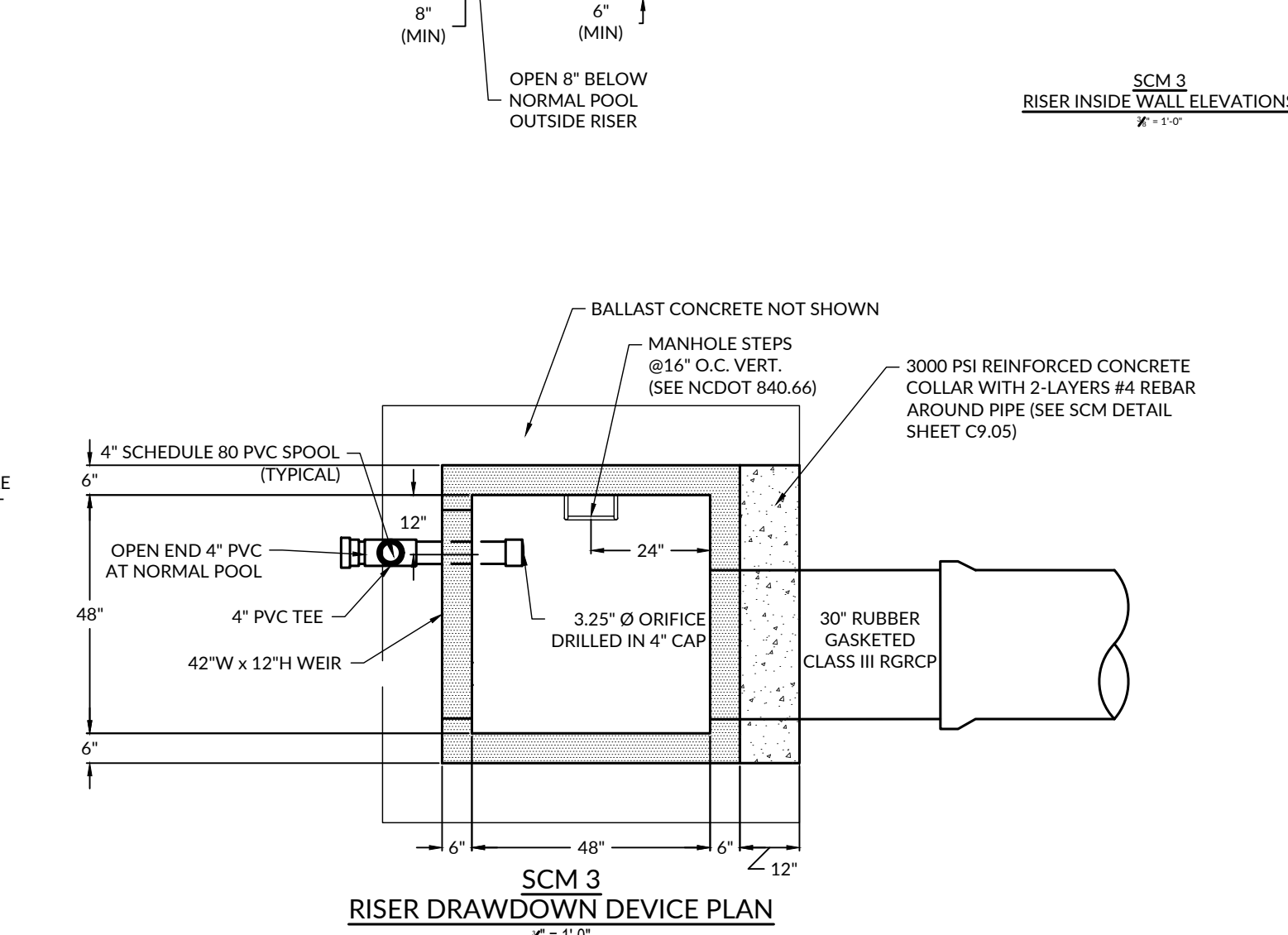
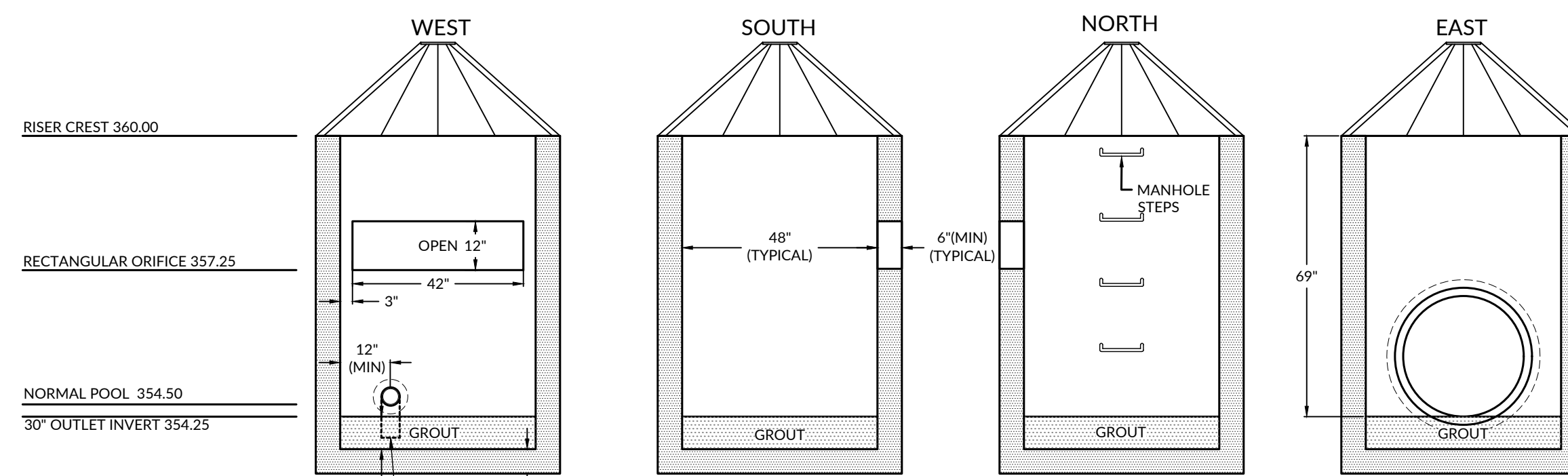


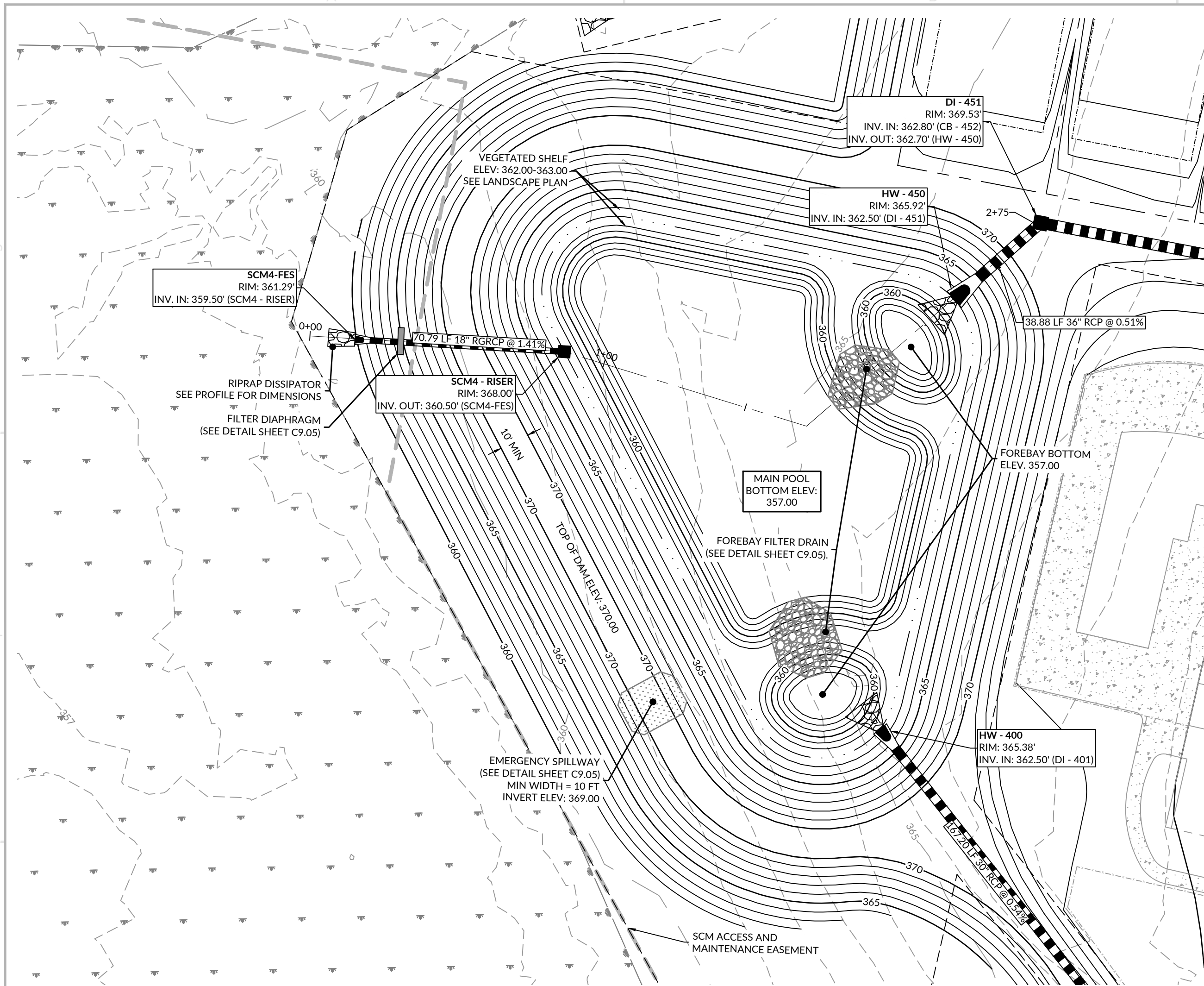
NOTE: RISER AND BALLAST CONCRETE HAVE BEEN SIZED BASED ON BUOYANCY CALCULATIONS. ADJUSTMENTS TO CONCRETE DIMENSIONS ARE NOT PERMITTED WITHOUT PRIOR WRITTEN APPROVAL. ANY DIMENSIONAL CHANGES TO BALLAST CONCRETE BASE AND RISER MUST BE REQUESTED IN WRITING AND MUST BE ACCOMPANIED BY BUOYANCY CALCULATIONS SIGNED AND SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.



WET POND SCM #3 PROFILE VIEW

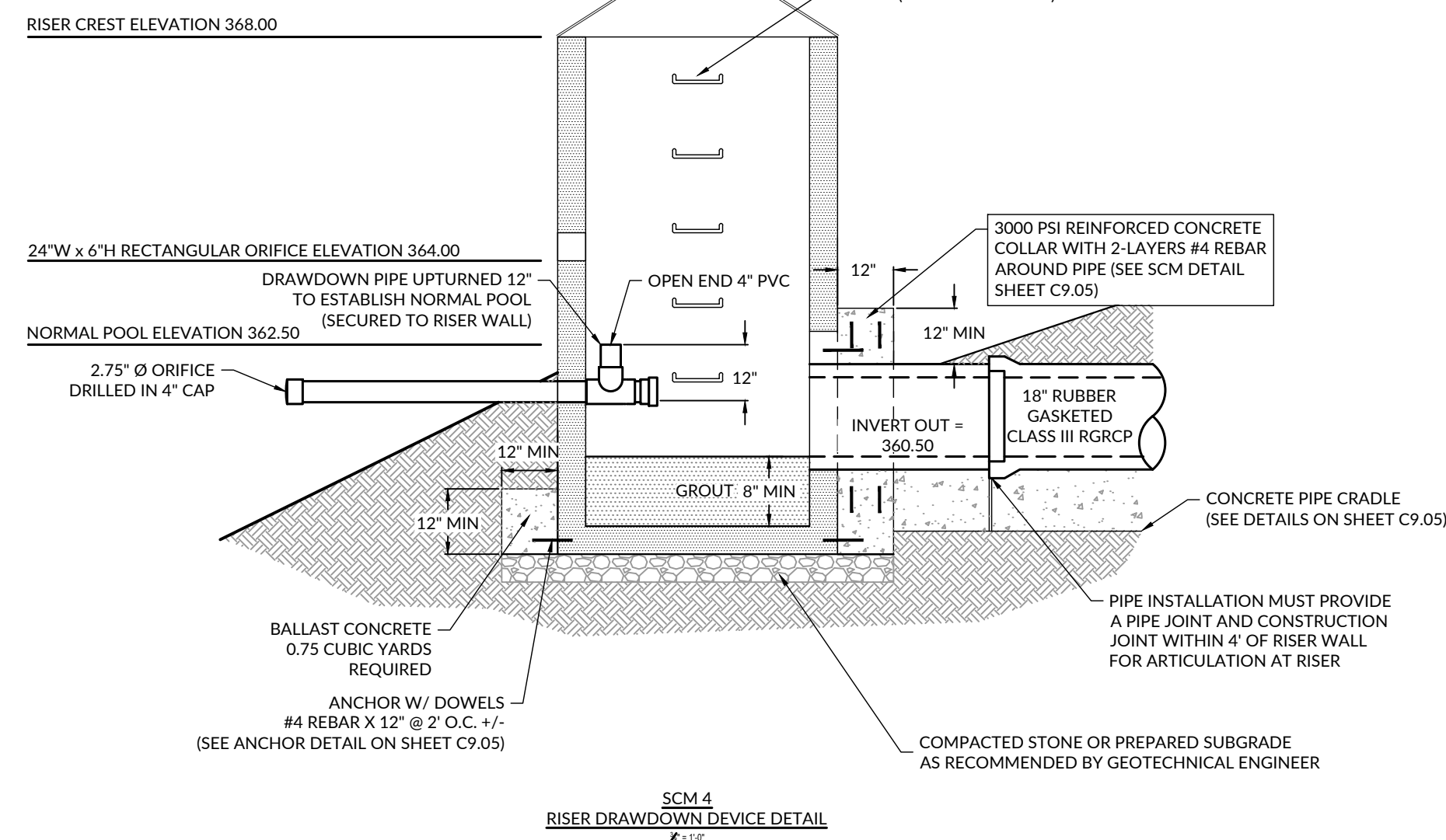
SCALE: 1" = 30' HORIZONTAL, 1" = 3' VERTICAL





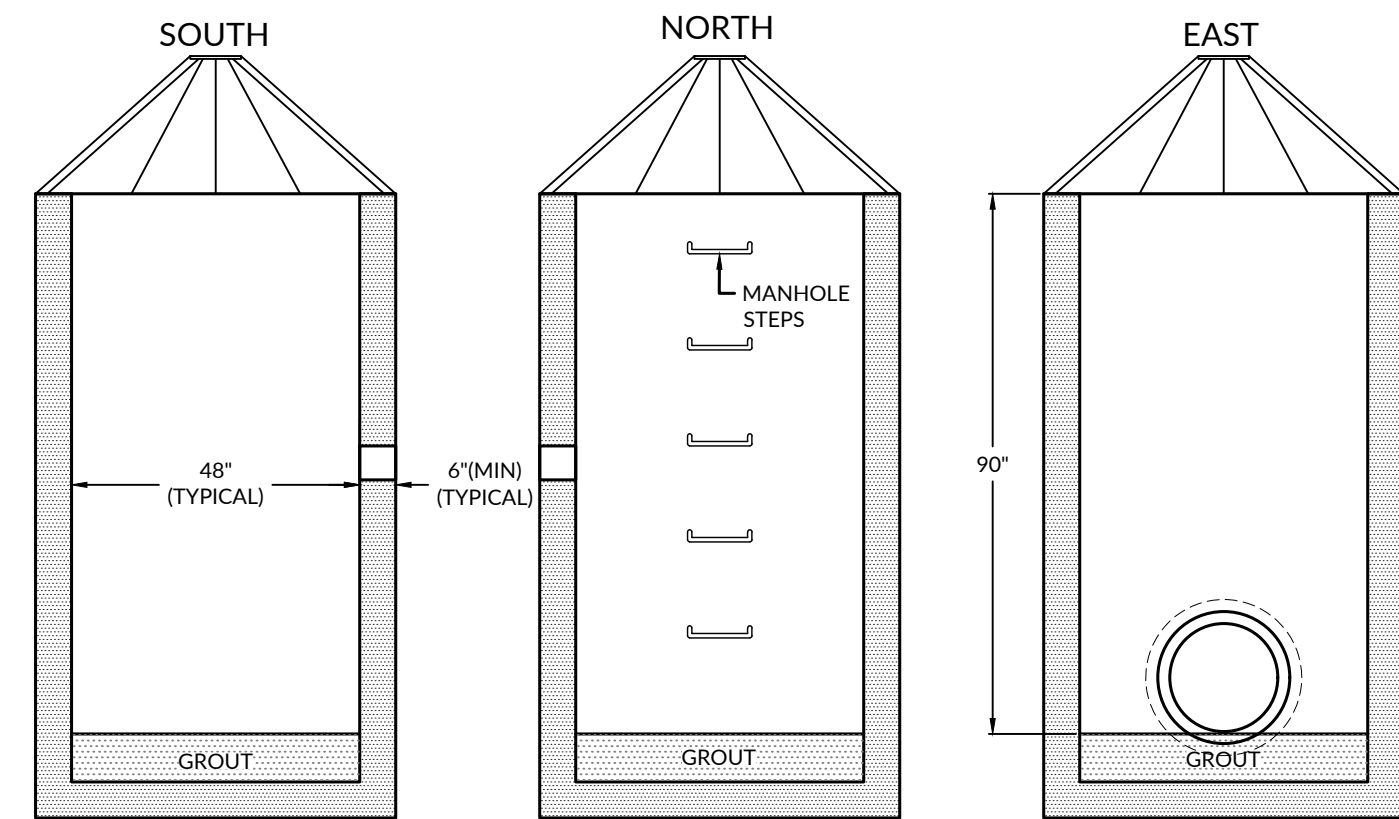
WET POND SCM #4 PLAN VIEW

SCALE: 1" = 30'

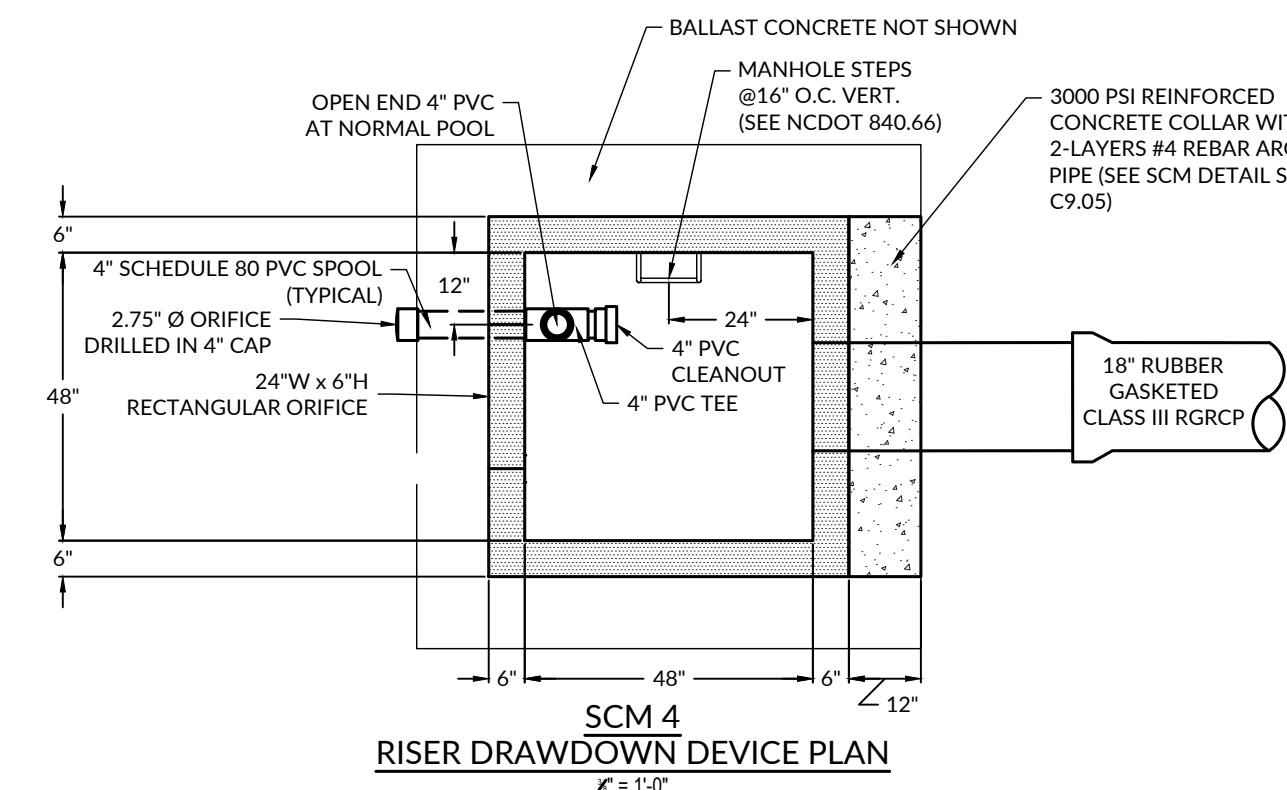


**SCM 4
RISER DRAWDOWN DEVICE DETAIL**

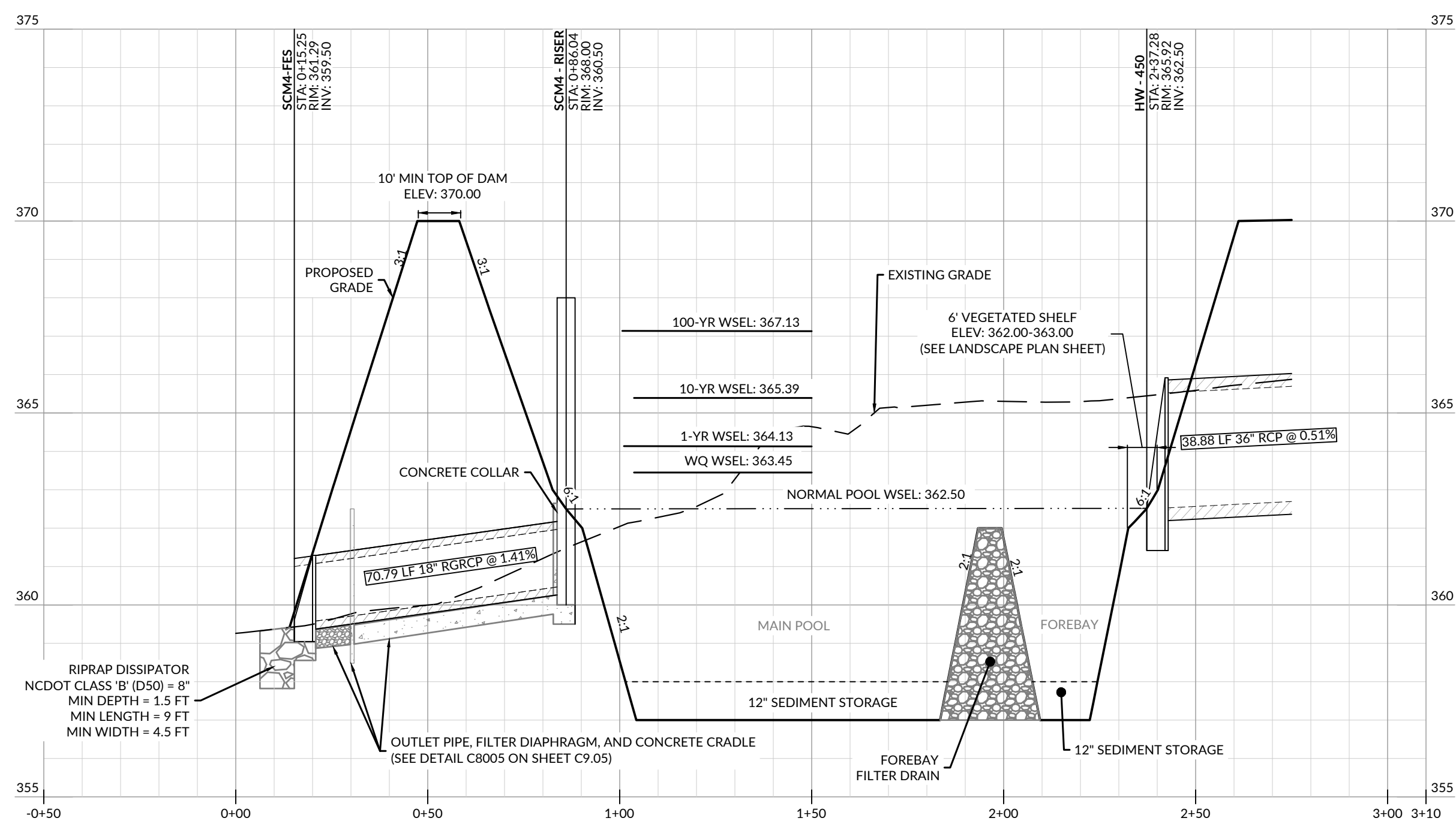
NOTE:
RISER AND BALLAST CONCRETE HAVE BEEN SIZED BASED ON BUOYANCY CALCULATIONS. ADJUSTMENTS TO CONCRETE DIMENSIONS ARE NOT PERMITTED WITHOUT PRIOR WRITTEN APPROVAL. ANY DIMENSIONAL CHANGES TO BALLAST CONCRETE BASE AND RISER MUST BE REQUESTED IN WRITING AND MUST BE ACCOMPANIED BY BUOYANCY CALCULATIONS SIGNED AND SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.



**SCM 4
RISER INSIDE WALL ELEVATIONS**



**SCM 4
RISER DRAWDOWN DEVICE PLAN**



WET POND SCM #4 PROFILE VIEW

SCALE: 1" = 30' HORIZONTAL, 1" = 3' VERTICAL

WET POND STORMWATER CONTROL MEASURE (SCM) GENERAL NOTES:

- PRIOR TO OR DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES IN THE PLANS OR SPECIFICATIONS.
- ALL CONSTRUCTION AND MINIMUM DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL STANDARDS AND SPECIFICATIONS, HEREBY INCORPORATED BY REFERENCE.
- UPON COMPLETION OF CONSTRUCTION, CERTIFICATION OF THE SCM BY THE GEOTECHNICAL ENGINEER WILL BE REQUIRED PRIOR TO FINAL SCM ACCEPTANCE.
- THE GEOTECHNICAL ENGINEER SHALL EVALUATE SOILS FOR SUITABILITY OF DAM CONSTRUCTION AND SLOPE STABILITY.
- PRIOR TO PLACEMENT OF EMBANKMENT FILL, THE GEOTECHNICAL ENGINEER SHALL SUPERVISE THE FOUNDATION PREPARATION AND APPROVE THE DEPTH AND EXTENT OF THE CUTOFF TRENCH, A MINIMUM OF 1 FOOT SHALL BE EXCAVATED.
- THE DAM AND FOREBAY BERMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS UNLESS SUPERCEDED BY THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS:
 - BORROW MATERIALS FOR USE AS EMBANKMENT FILL SHALL BE FREE OF ORGANICS, ROOTS AND OTHER WOODY VEGETATION OR ORGANIC DEBRIS.
 - FILL MATERIALS SHALL CONSIST OF SOILS WHICH CLASSIFY AS SC, SM, CL, CL-CH AND ML IN ACCORDANCE WITH THE UNIFIED CLASSIFICATION SYSTEM OR AS APPROVED BY THE GEOTECHNICAL ENGINEER.
 - FILL MATERIALS SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3 INCHES IN MEAN DIAMETER.
 - FILL SHALL BE PLACED IN 8 INCH (MAXIMUM) LOOSE LIFTS FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT AND IN 4 INCH (MAXIMUM) LOOSE LIFTS FOR MATERIAL COMPACTED BY HAND OPERATED TAMPERS UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE. FILL SHALL BE BROUGHT UP BY BENCHING INTO THE EXISTING SLOPE. A MAXIMUM HEIGHT OF 2 FEET SHALL BE USED FOR EACH BENCH LIFT TAKING CARE TO REMOVE ROOT STRUCTURES AS THE FILL PROCEEDS. THE SURFACE OF EACH LIFT SHALL BE SCARIFIED PRIOR TO PLACEMENT OF THE NEXT LIFT IN ORDER TO EFFECTIVELY TIE THE FILL LIFTS TOGETHER.
 - ALL COMPACTION SHALL BE TESTED BY THE NUCLEAR METHOD (ASTM D-6938) OR SAND CONE METHOD (ASTM D-1556) AT A RATE OF AT LEAST ONE TEST PER 5,000 SF PER ONE FOOT OF COMPACTED FILL THICKNESS IN GENERAL AREA FILLS AND ONE TEST PER 50 LINEAL FEET PER LIFT ALONG THE BARREL.
 - THE MINIMUM COMPACTION SHALL BE A MINIMUM OF 95% OF THE MAXIMUM STANDARD PROCTOR DENSITY (ASTM D-698) AT MOISTURE CONTENTS VARYING FROM 2 PERCENT BELOW TO 3 PERCENT ABOVE OPTIMUM MOISTURE CONTENT DETERMINED BY STANDARD PROCTOR TEST.
- SUBGRADE FOR THE RISER STRUCTURE AND OUTLET PIPE SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. IF THE GEOTECHNICAL ENGINEER REQUIRES ADDITIONAL SUBGRADE PREPARATION, THE ADDITIONAL COST SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT.
- THE OUTLET PIPE SHALL BE BEDDED IN CONCRETE FOR 2/3 OF THE PIPE LENGTH, BEGINNING AT THE RISER, AND IN #7 STONE FOR 1/3 OF PIPE LENGTH TO THE OUTLET. SEE DETAILS ON SHEET C9.05.
- EMBANKMENT AND SIDE SLOPES OF THE BASIN SHALL BE STABILIZED PER SEEDING SCHEDULE ON EROSION CONTROL DETAILS SHEET OR SODDED. SEE LANDSCAPE PLAN ON SHEETS FOR FURTHER PLANTING DETAILS.
- IF, DURING CONSTRUCTION, THE SCM IS TO BE USED AS AN EROSION CONTROL MEASURE, THE FOREBAY BERM(S) SHALL NOT BE INSTALLED DURING THE INITIAL CONSTRUCTION OR WHILE THE SCM IS USED AS AN EROSION CONTROL MEASURE.
- UNLESS OTHERWISE NOTED, ALL PERMANENT STRUCTURES (e.g. RISER/BARREL, WEIR WALLS, ETC.) ARE TO BE INSTALLED WITH THE INITIAL DAM CONSTRUCTION.
- FOR SITE BUILT FEATURES (e.g. WEIR WALLS, DROP STRUCTURES, BRIDGES, ETC.), THE CONTRACTOR SHALL PROVIDE STRUCTURAL DRAWINGS TO BE SIGNED AND SEALED BY A NC PROFESSIONAL ENGINEER AND TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
- PRIOR TO FINAL GRADING OF THE SCM, THE CONTRACTOR SHALL PROVIDE SUFFICIENT AS-BUILT SURVEY INFORMATION TO CONFIRM THAT THE FINISHED SCM WILL MEET THE SPECIFIC DIMENSIONAL REQUIREMENTS APPLICABLE TO THE SCM. THOSE REQUIREMENTS INCLUDE:
 - POND BOTTOM ELEVATION = 357.00 FT
 - DRAWDOWN OVERFLOW ELEVATION (NORMAL POOL) = 362.50 FT
 - MINIMUM SURFACE AREA AT NORMAL POOL ELEVATION = 16,709 SF
 - MINIMUM VOLUME REQUIRED FOR WATER QUALITY = 17,301 CF
 - PROVIDED VOLUME FOR WATER QUALITY = 27,831 CF
 - RECTANGULAR ORIFICE ELEVATION = 364.00 FT
 - RISER CREST ELEVATION = 368.00 FT
 - LOW POINT TOP OF EMBANKMENT (AUXILIARY SPILLWAY) = 369.00 FT
 - AVERAGE TOP OF EMBANKMENT = 370.00 FT
- ELEVATIONS SHALL BE WITHIN 0.1 FEET OF THE ABOVE ELEVATIONS FOR EARTHWORK, AND 0.05 FEET FOR OUTLET STRUCTURE. ALL SURFACE AREAS ARE THE MINIMUM AREAS. REQUEST FOR A REDUCTIONS IN THE MINIMUM VALUES WILL BE CONSIDERED ON A CASE BY CASE BASIS.
- ONCE THE PROJECT SITE HAS BEEN STABILIZED, CONTRACTOR SHALL OBTAIN APPROVAL BY EROSION CONTROL INSPECTOR IN ORDER TO REMOVE TEMPORARY EROSION CONTROL DEVICES.
 - ONCE ALL SEDIMENT AND EROSION CONTROL DEVICES HAVE BEEN REMOVED, THE SCM SHALL BE CONVERTED TO A PERMANENT SCM.
 - ALL SEDIMENT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
 - FOREBAY AND VEGETATED SHELF SHALL BE CONSTRUCTED AS SHOWN ON THE PLAN.
 - VEGETATED SHELF SHALL BE PLANTED PER PLANT SCHEDULE ON LANDSCAPE PLAN (SEE LITTLE DIVERSIFIED ARCHITECTS).
- FINAL CERTIFICATION OF THE SCM BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED IS REQUIRED.

CLAY LINER SPECIFICATIONS:

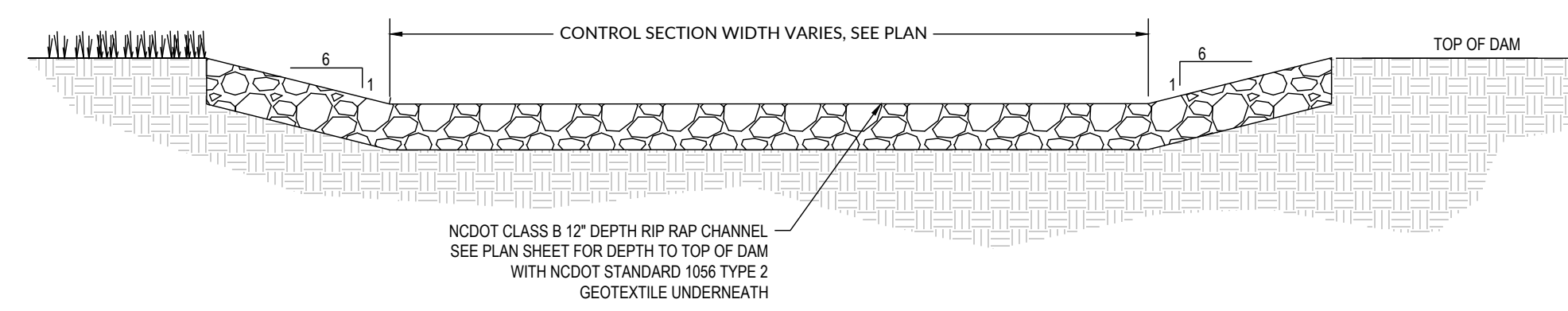
- THE CONTRACTOR SHALL INSTALL A CLAY LINER TO MAINTAIN A PERMANENT POOL AT THE DESIGN ELEVATION. IF THE SITE GEOTECHNICAL ENGINEER DETERMINES THAT THE EXISTING SITE CONDITIONS (SOIL PROPERTIES, EXISTING WATER TABLE, ETC.) INDICATE THAT NORMAL POOL CAN BE MAINTAINED WITHOUT A CLAY LINER, THE GEOTECHNICAL ENGINEER WILL PROVIDE NOTICE IN WRITING TO THE PROJECT ENGINEER THAT THE CLAY LINER IS NOT REQUIRED. IF THE CLAY LINER IS NOT INSTALLED, THE OWNER SHALL RECEIVE A CREDIT FOR THE DELETION OF THE LINER.
- AT A MINIMUM, THE CLAY LINER MATERIAL FOR THE WET POND SHALL MEET THE FOLLOWING SPECIFICATIONS:
- UNIFIED SOIL CLASSIFICATION SYSTEM DESIGNATION OF CL, CH, ML, OR SC
 - MINIMUM OF 40% PASSING #200 SIEVE
 - MINIMUM PLASTICITY INDEX OF 12
 - MAXIMUM PERMEABILITY OF 1×10^{-5} cm/sec
 - A MINIMUM OF 2 TESTS OF EACH ABOVE PARAMETER SHALL BE PROVIDED FROM AN APPROVED LABORATORY ON THE LINER MATERIAL AND PRESENTED TO THE ENGINEER FOR APPROVAL PRIOR TO PLACEMENT OF THE MATERIAL.
 - COMPACTION TO A MINIMUM OF 95% OF THE MAXIMUM STANDARD PROCTOR DENSITY (ASTM D-698), AND WITHIN 3% OF THE OPTIMUM MOISTURE CONTENT (MINIMUM OF 1 COMPACTION DENSITY TEST PER 2500 SQUARE FEET).

- AN IN-PLACE MAXIMUM INFILTRATION RATE OF 0.01 INCHES PER HOUR.
- RECOMMENDATIONS OF THE SITE GEOTECHNICAL ENGINEER MAY SUPERCEDE THE ABOVE SPECIFICATIONS.

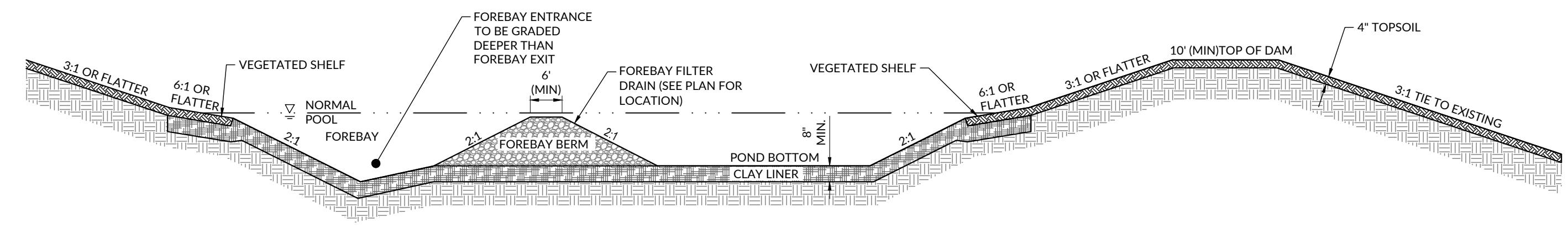
THE CLAY LINER SHALL BE PLACED UNDER THE BOTTOM OF THE SCM PERMANENT POOL TO A MINIMUM THICKNESS OF 8 INCHES. A MINIMUM OF 4 INCHES OF TOPSOIL SHALL BE PLACED ABOVE THE CLAY LINER TO THE FINISHED GRADE AS SHOWN ON THE DRAWINGS AND/OR DETAILS. CARE SHALL BE TAKEN WHEN PLACING THE TOPSOIL SO AS NOT TO DAMAGE THE CLAY LINER. A CLAY/SOIL, NO ORGANICS, MIXTURE MAY BE USED IF THE ABOVE SPECIFICATIONS ARE SATISFIED AND WITH WRITTEN APPROVAL BY THE GEOTECHNICAL ENGINEER.

PRECAST CONCRETE MATERIALS NOTES:

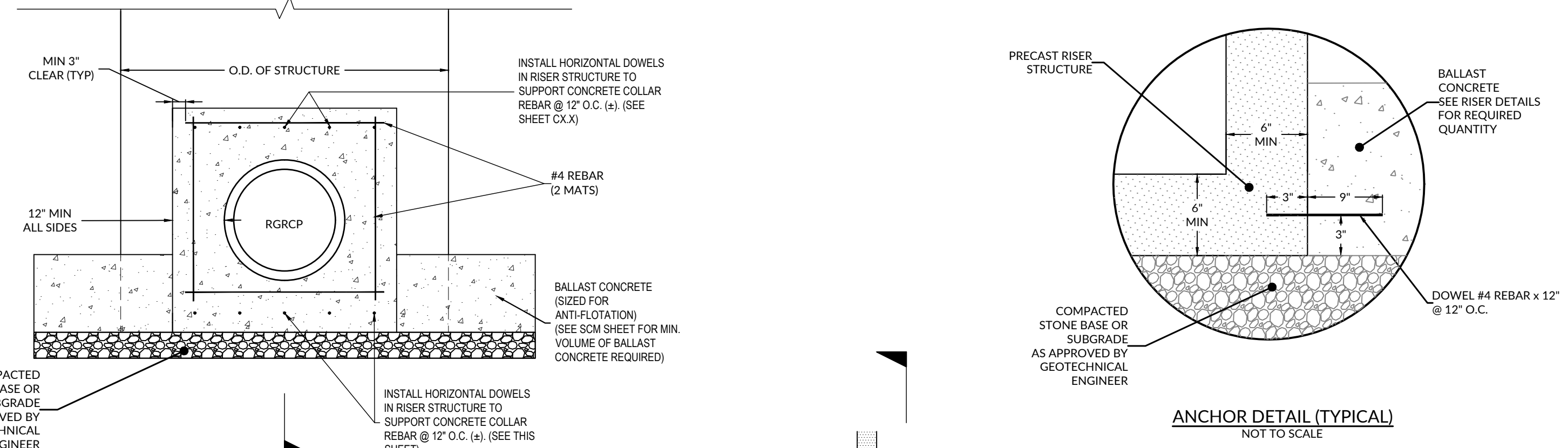
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 - O-RING JOINTS (RGRCP) SHALL CONFORM TO ASTM C443 & ASTM C361.
 - NON O-RING JOINTS (RCP) SHALL CONFORM TO ASTM C990.



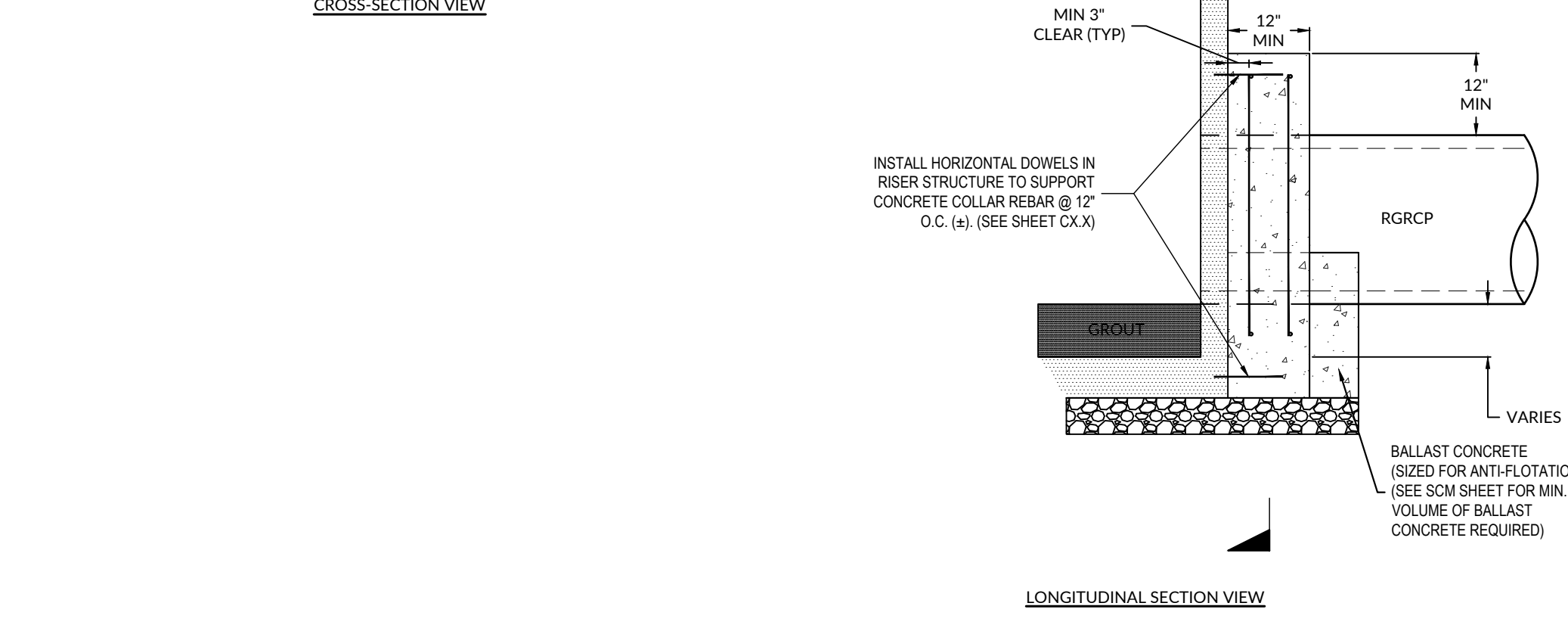
EMERGENCY SPILLWAY DETAIL



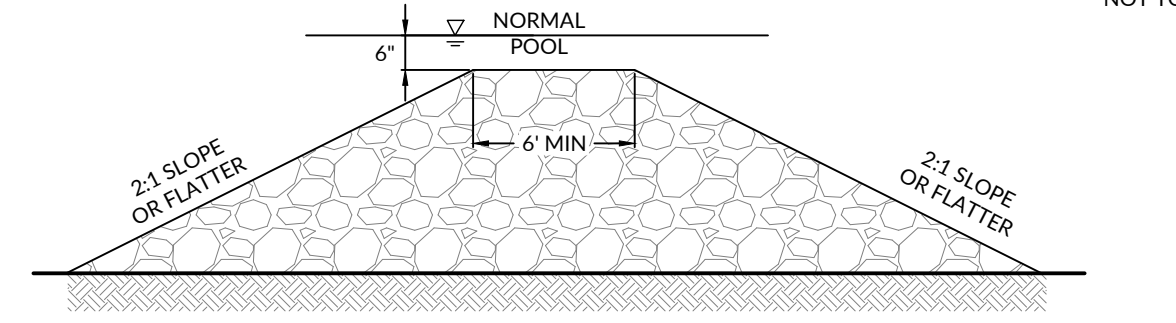
WET POND GRADING DETAIL
NOT TO SCALE



ANCHOR DETAIL (TYPICAL)
NOT TO SCALE



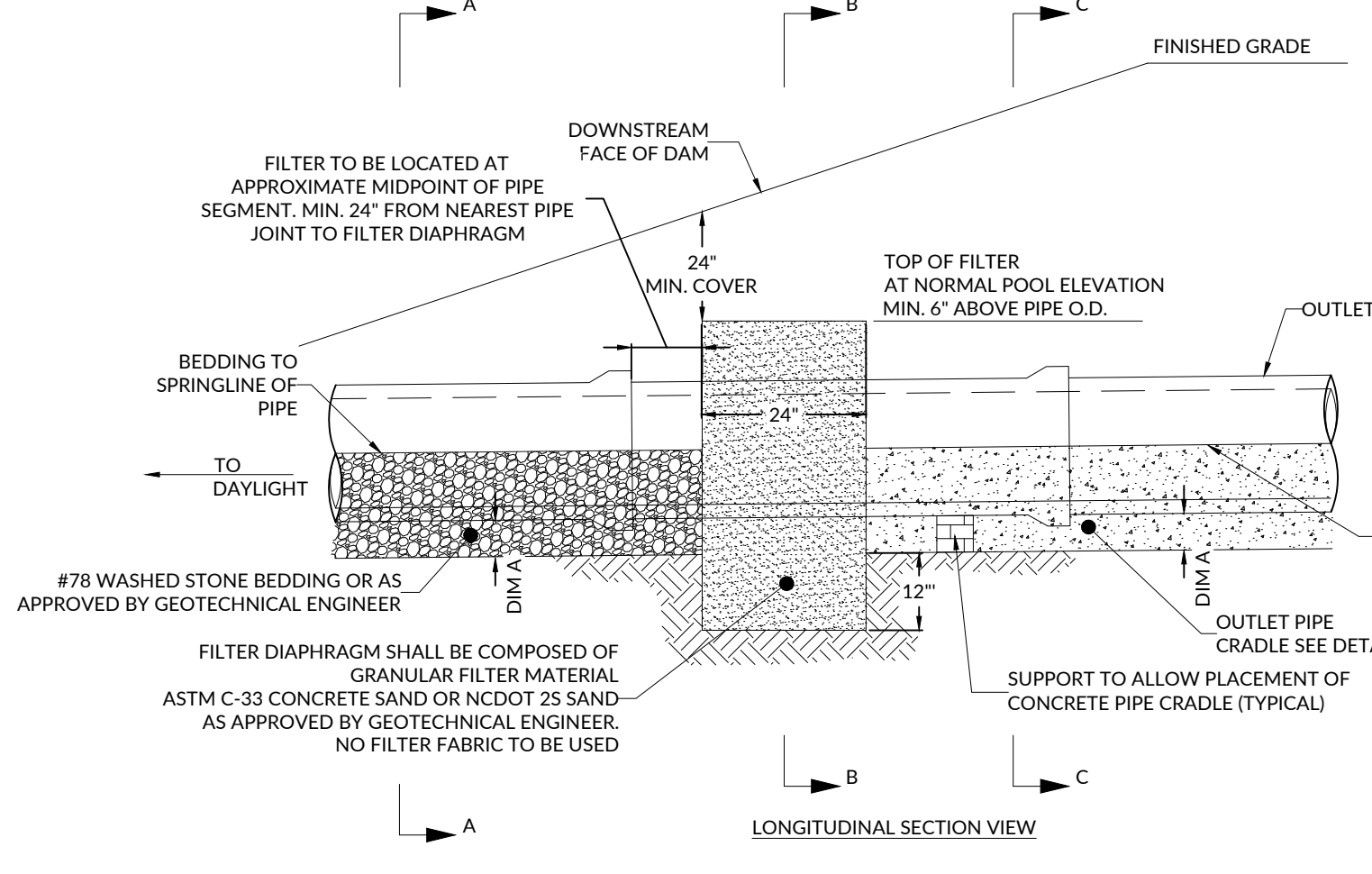
CONCRETE PIPE COLLAR AT STRUCTURE DETAIL
NOT TO SCALE



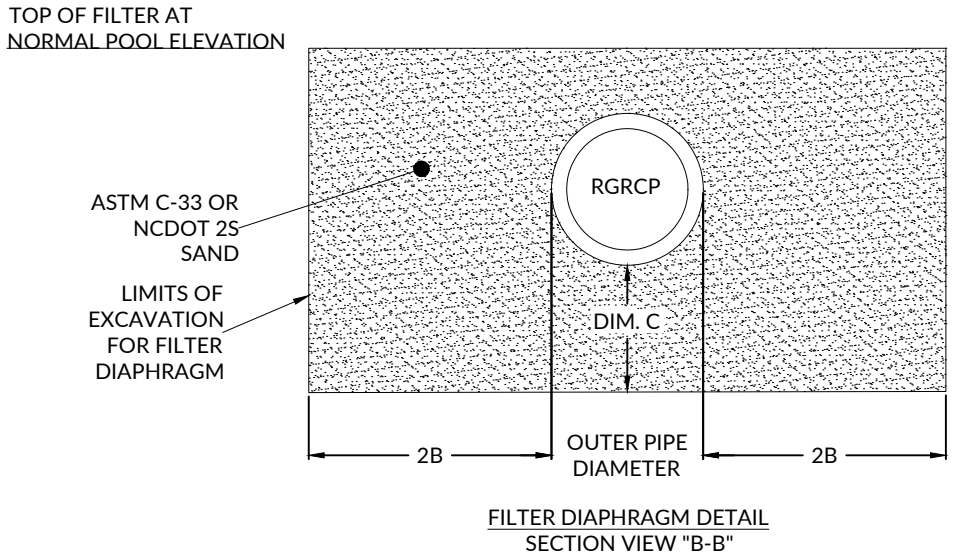
FOREBAY FILTER DRAIN TYPICAL DETAIL
ELEVATION

- BOTTOM WIDTH SHALL BE NO LESS THAN 5'
- USE NCDOT CLASS "B" RIP-RAP TO FILL SPILLWAY
- SLOPES FROM SPILLWAY BOTTOM TO TOP OF BERM SHOULD BE NO STEEPER THAN 2:1

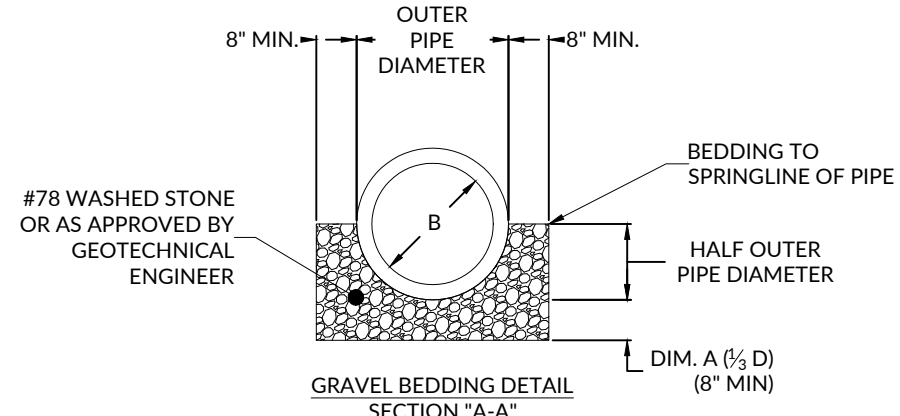
FOREBAY FILTER DRAIN DETAIL
NOT TO SCALE



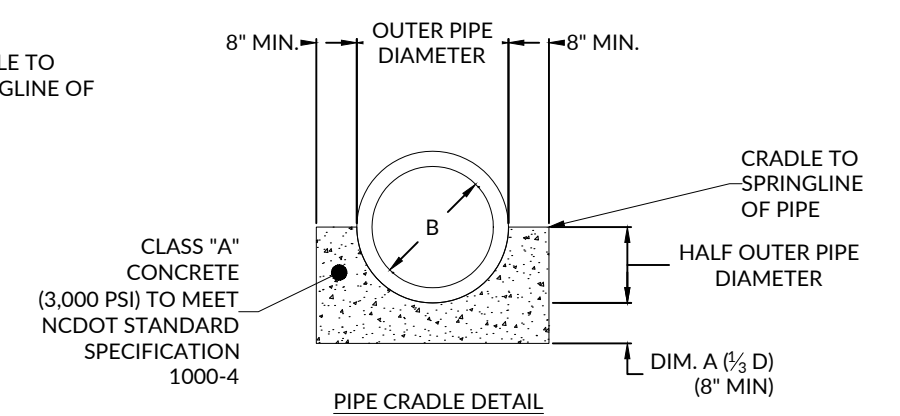
LONGITUDINAL SECTION VIEW



FILTER DIAPHRAGM DETAIL SECTION VIEW "B-B"



GRAVEL BEDDING DETAIL SECTION VIEW "A-A"



PIPE CRADLE DETAIL SECTION VIEW "C-C"

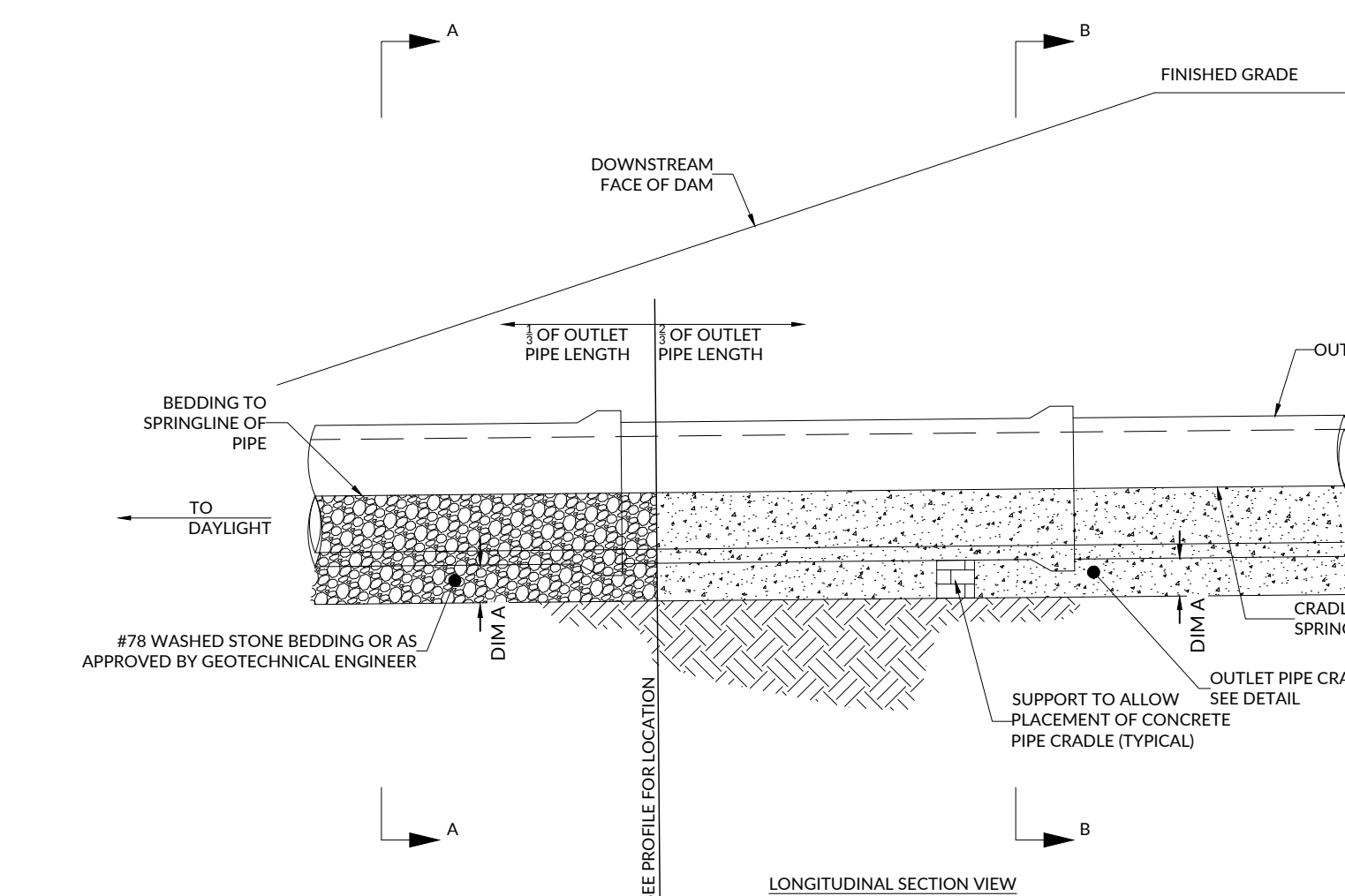
NOTE: IF PIPE IS INSTALLED IN EXCAVATED TRENCH, THEN SIDE WALLS MAY CONFORM TO TRENCH (TRENCH MAY BE USED AS CRADLE FORM)

NOMINAL PIPE SIZE (D)	DIM A* (1/2 D)	DIM B (PIPE ID)	DIM C (DIM A + 12")	SCM #
18	8	18	20	4
24	8	24	20	
30	10	30	22	
36	12	36	24	
42	14	42	26	
48	16	48	28	

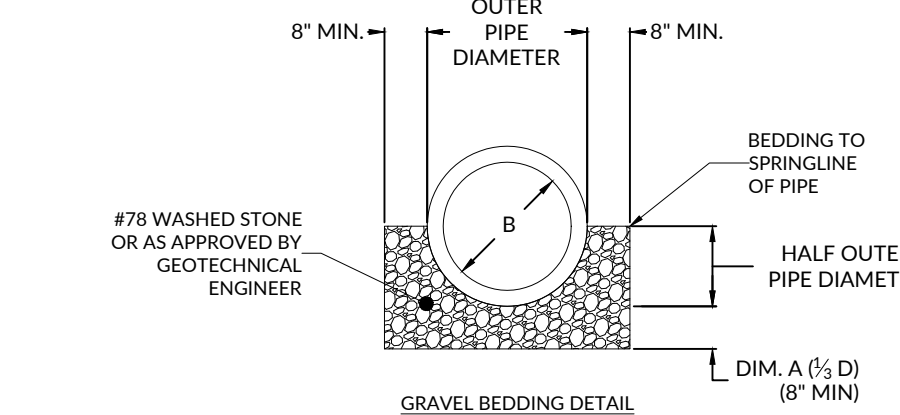
ALL DIMENSIONS IN INCHES
DIM A - 8" MINIMUM
18" MINIMUM PIPE DIAMETER

DRAINAGE MISC
C8005

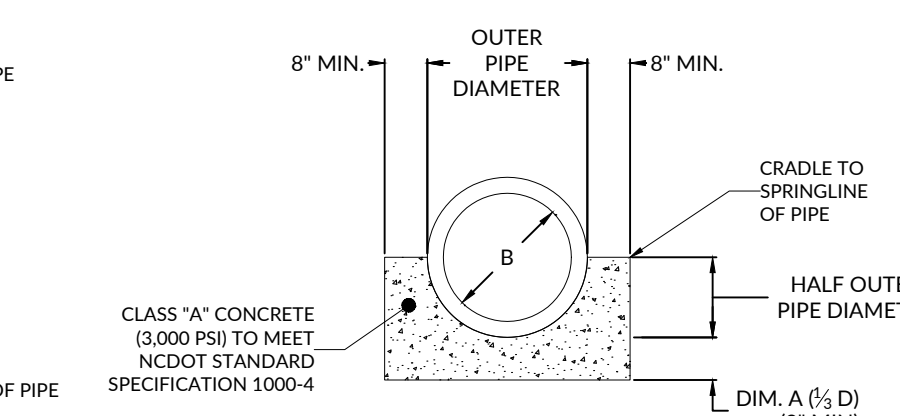
OUTLET PIPE, FILTER DIAPHRAGM, AND CONCRETE CRADLE
Scale: NTS



LONGITUDINAL SECTION VIEW



GRAVEL BEDDING DETAIL SECTION VIEW "A-A"



PIPE CRADLE DETAIL SECTION VIEW "B-B"

NOTE: IF PIPE IS INSTALLED IN EXCAVATED TRENCH, THEN SIDE WALLS MAY CONFORM TO TRENCH (TRENCH MAY BE USED AS CRADLE FORM)

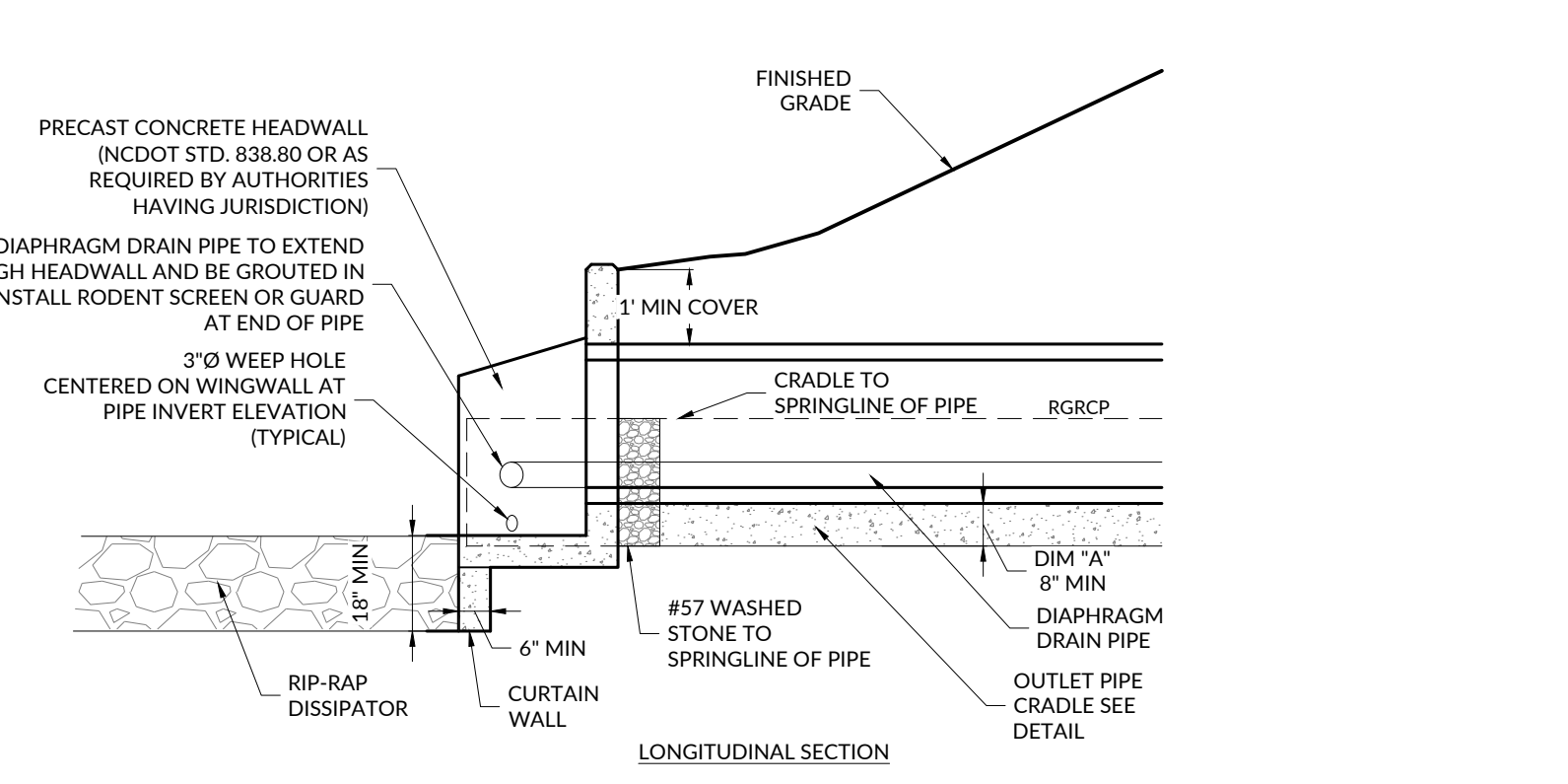
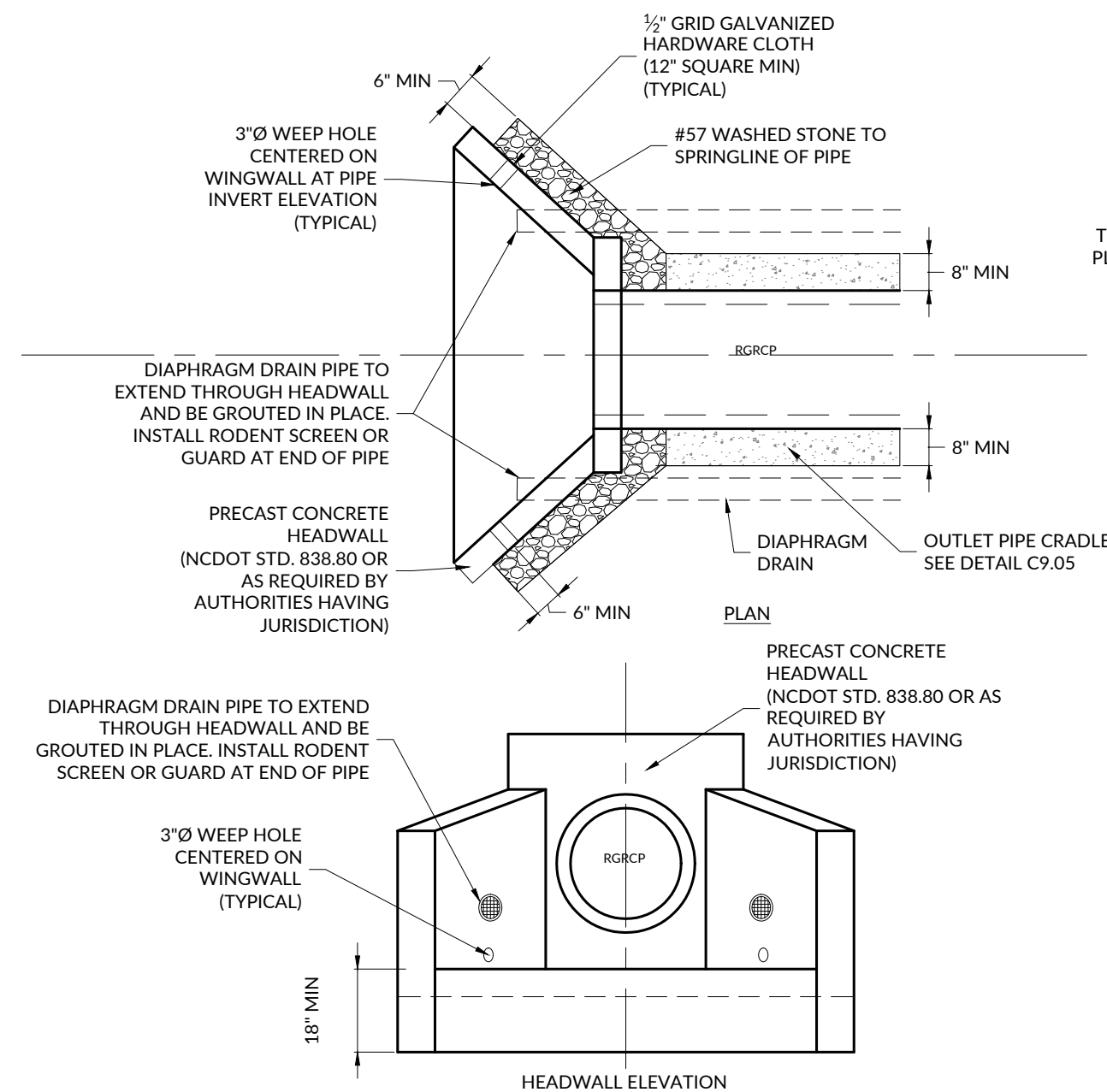
NOMINAL PIPE SIZE	DIM A* (1/2 D)	DIM B (PIPE ID)	DIM C (DIM A + 12")	SCM #
18	8	18	20	
24	8	24	20	
30	10	30	22	2, 3
36	12	36	24	1
42	14	42	26	
48	16	48	28	

ALL DIMENSIONS IN INCHES
DIM A - 8" MINIMUM
18" MINIMUM PIPE DIAMETER

DRAINAGE MISC
C8006

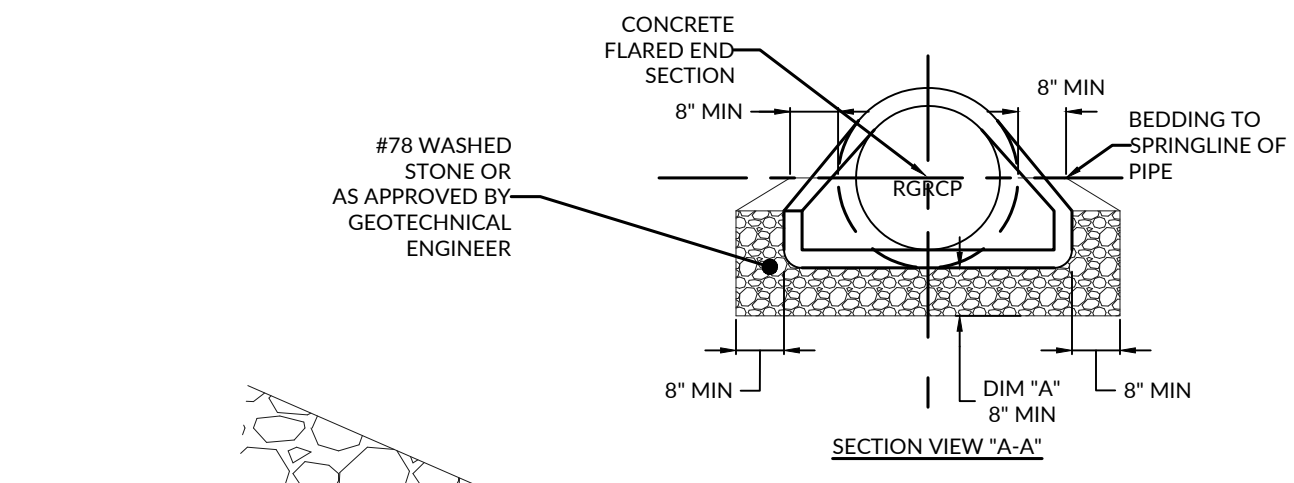
OUTLET PIPE, CONCRETE CRADLE, AND STONE BEDDING
Scale: NTS

J:\2025\0045-Pulte-WithersRavenel\Assemblies\CID Drawings\SCM Construction\CID-24-06-05-0045-DWG.dwg Thursday, January 2, 2025 10:56:52 AM: J.MUELLER



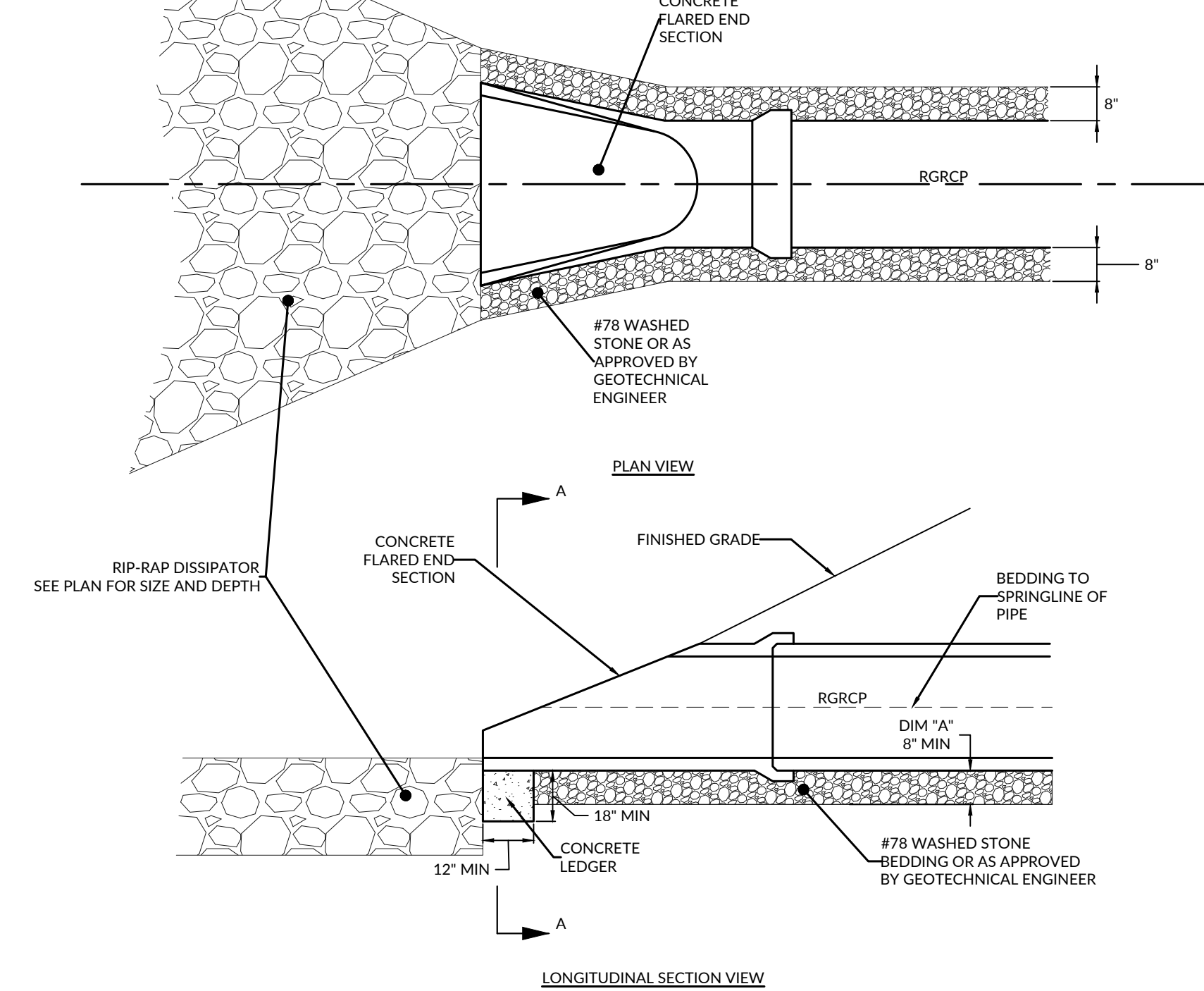
NOMINAL PIPE SIZE	DIM A* (1/3 D)	DIM B (1/2 D + t)	DIM C (D + 2t)	DIM D (PIPE ID)	DIM E (DIM A + 12")	DIM F (WALL)	SCM #
18	8	11.5	23	18	20	2.5	
24	8	15.0	30	24	20	3.0	
30	10	18.5	37	30	22	3.5	3
36	12	22.0	44	36	24	4.0	1
42	14	25.5	51	42	26	4.5	
48	16	29.0	58	48	28	5.0	

ALL DIMENSIONS IN INCHES
*DIM A - 8" MINIMUM
18" MINIMUM PIPE DIAMETER

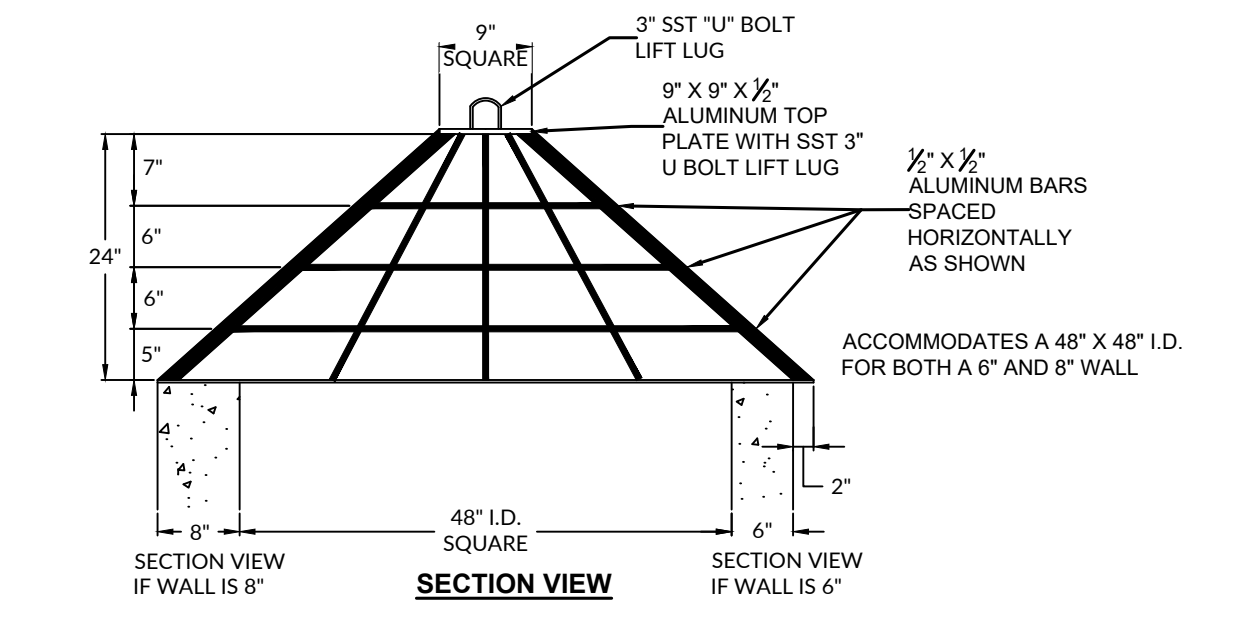
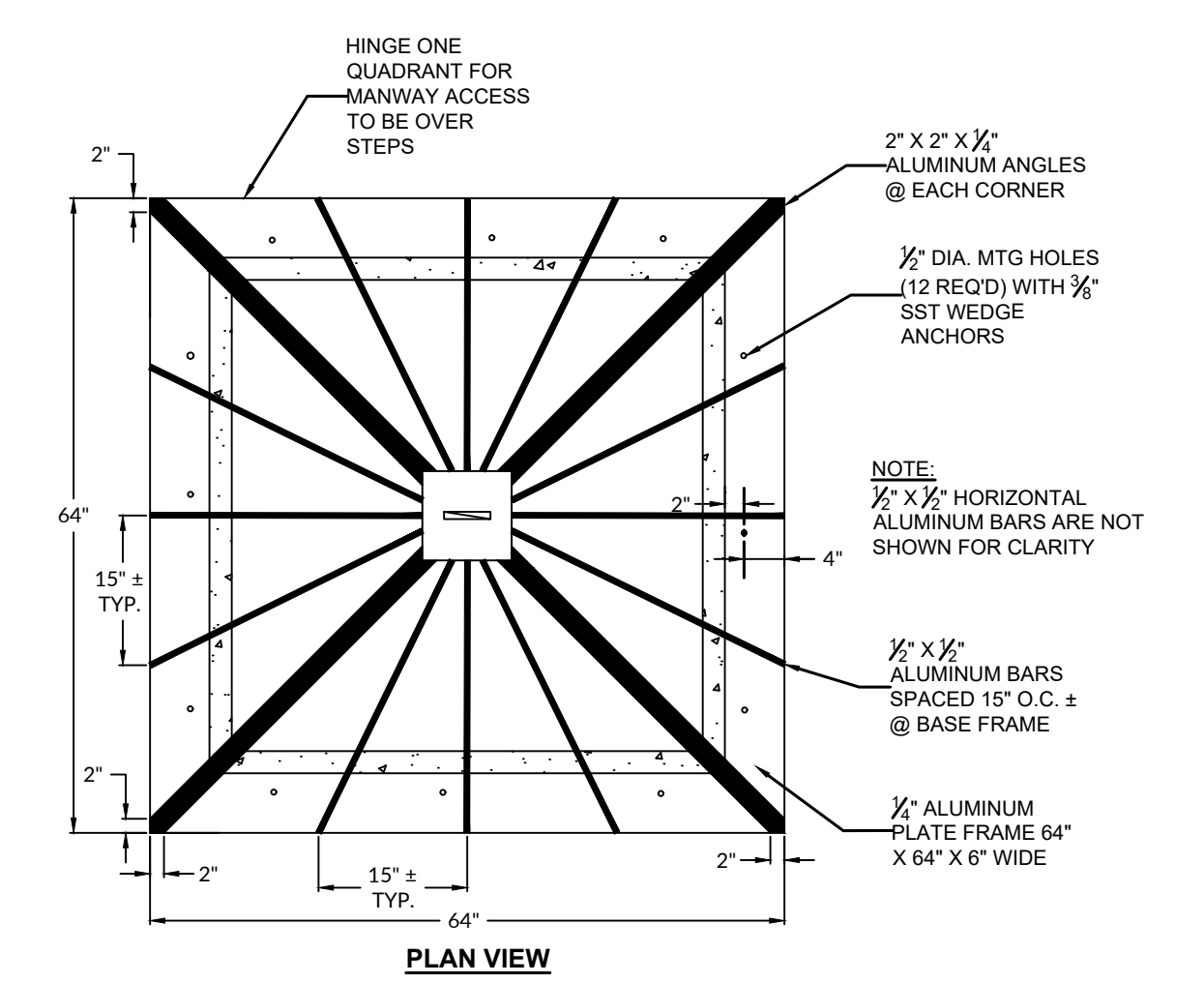
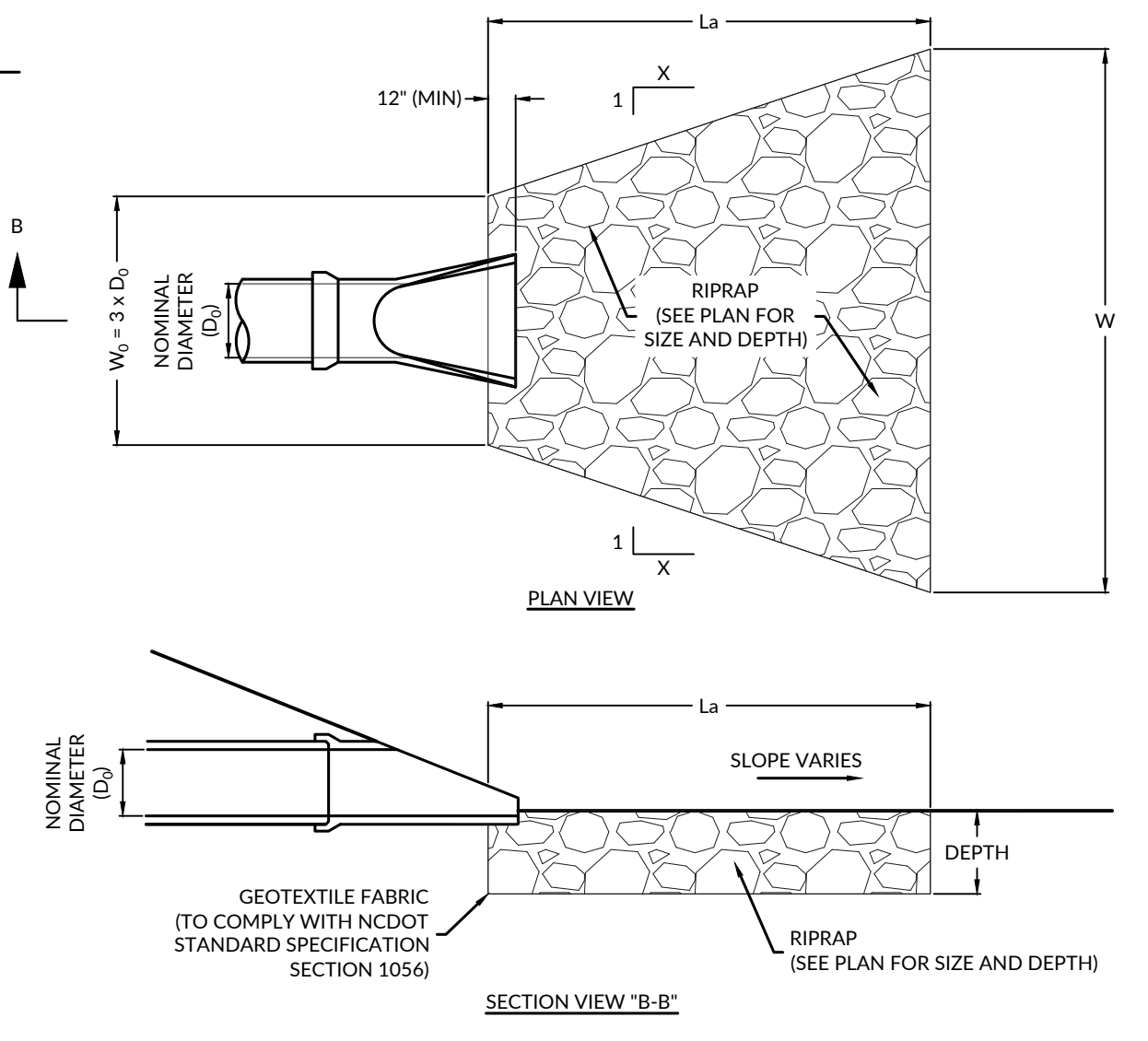


NOMINAL PIPE SIZE	DIM A* (D)	DIM B (PIPE ID)	DIM C (DIM A + 12")	SCM #
18	8	18	20	4
24	8	24	20	
30	10	30	22	2
36	12	36	24	
42	14	42	26	
48	16	48	28	

ALL DIMENSIONS IN INCHES
DIM A = 8" MINIMUM
18" MINIMUM PIPE DIAMETER

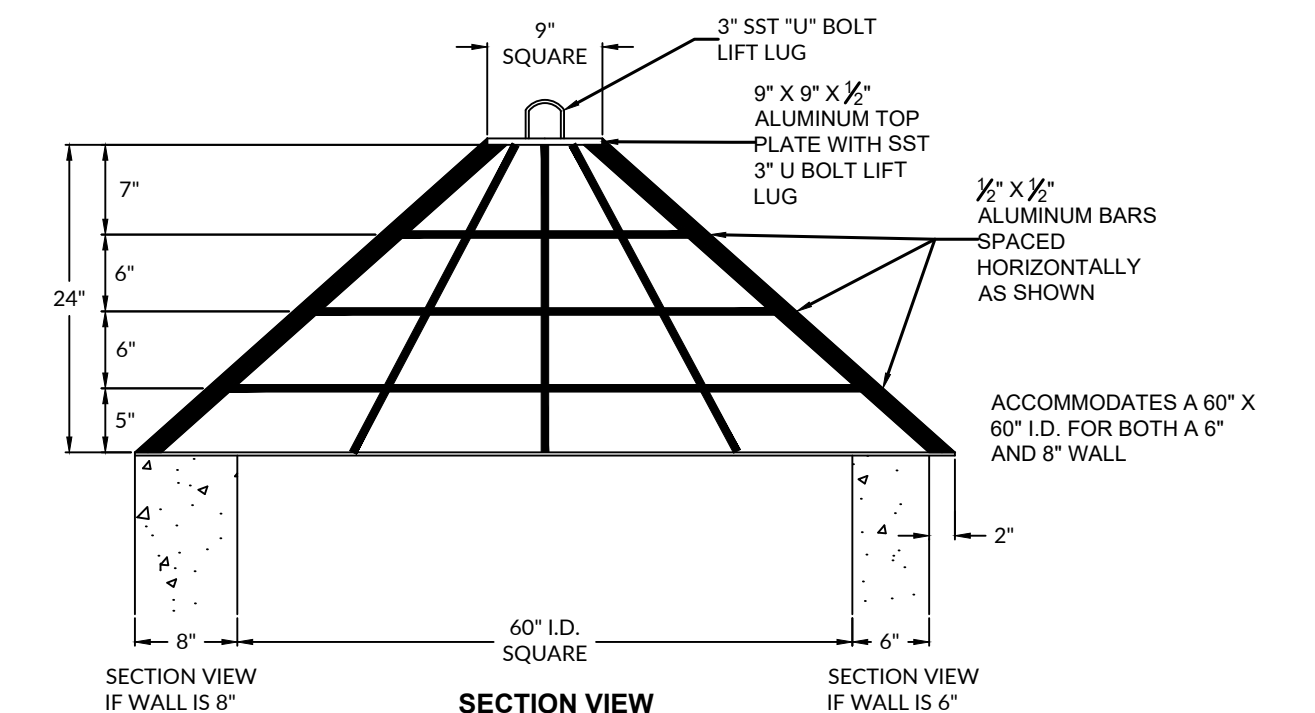
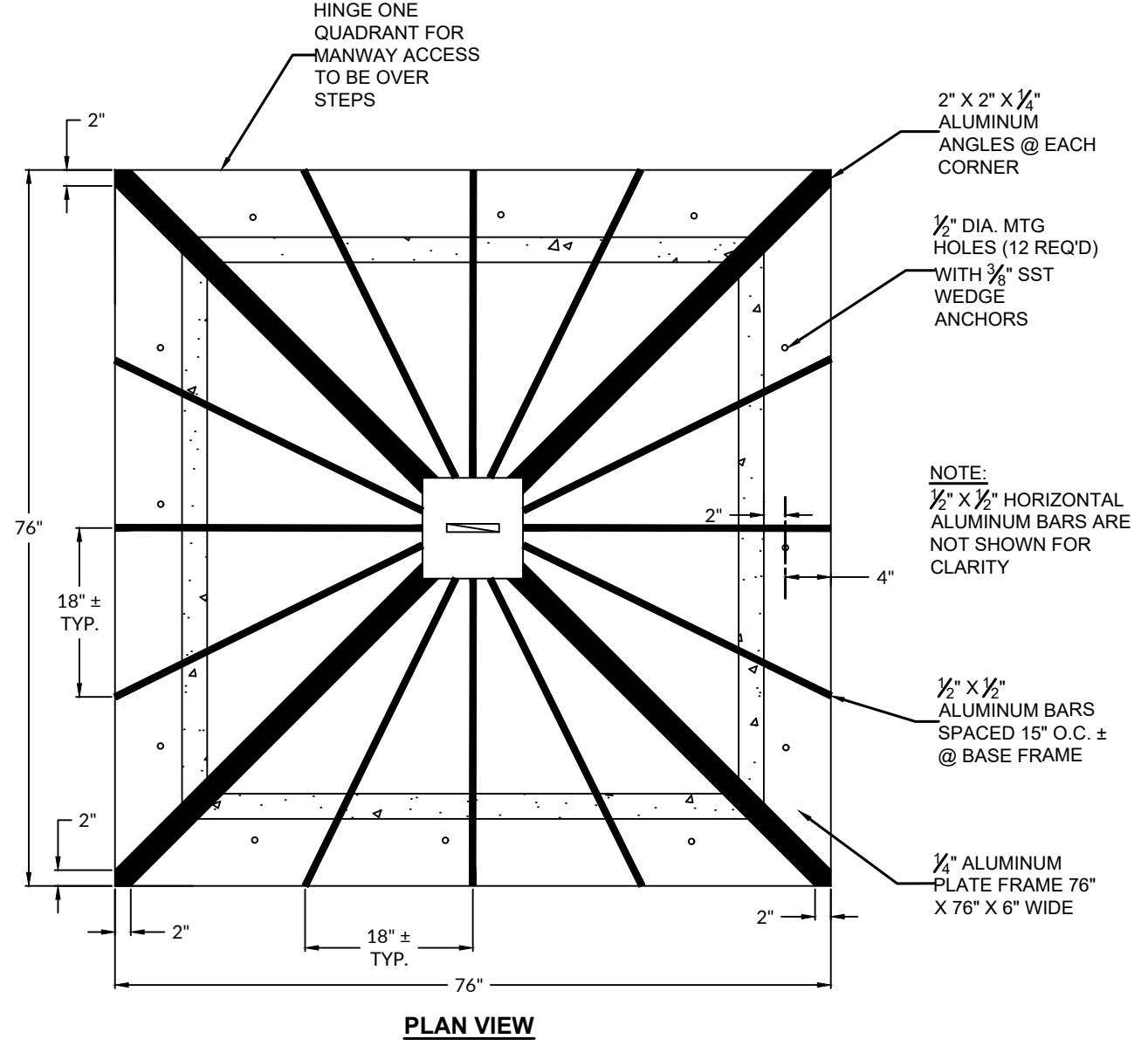


OUTLET DETAIL (FLARED END SECTION) & RIPRAP VELOCITY DISSIPATOR
(ADAPTED FROM HEC-14 & NYS DOT)
NOT TO SCALE



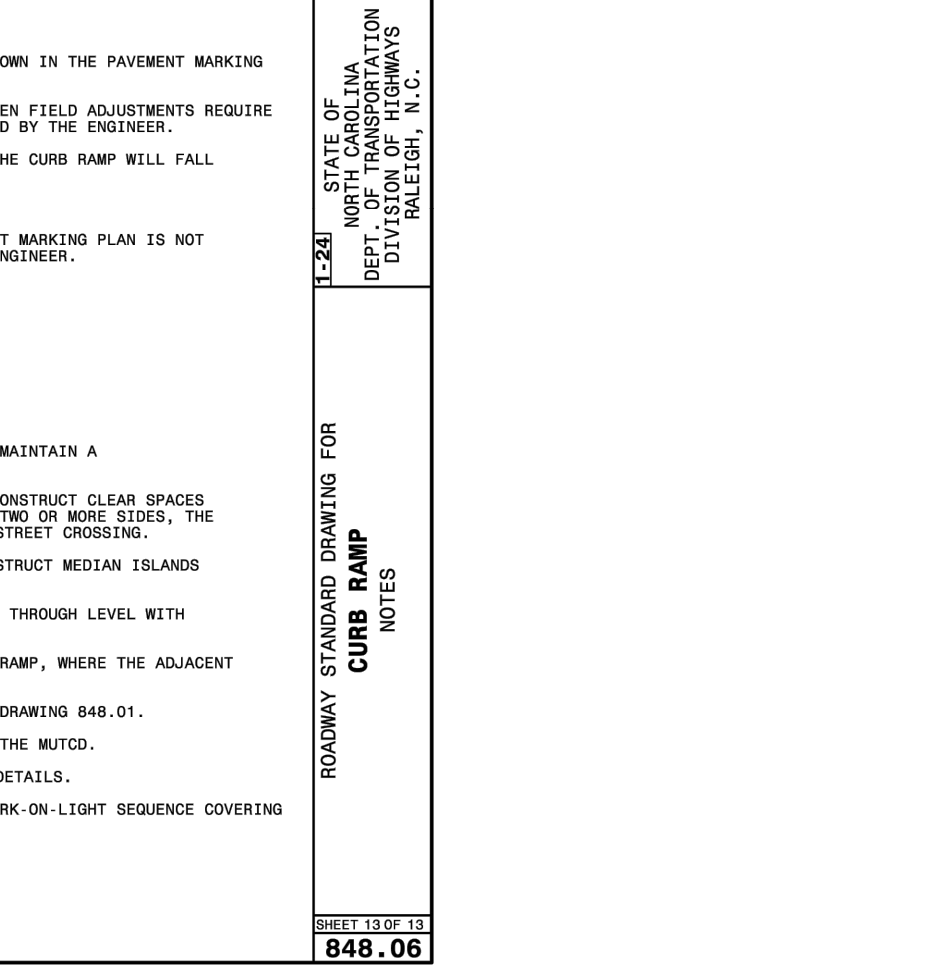
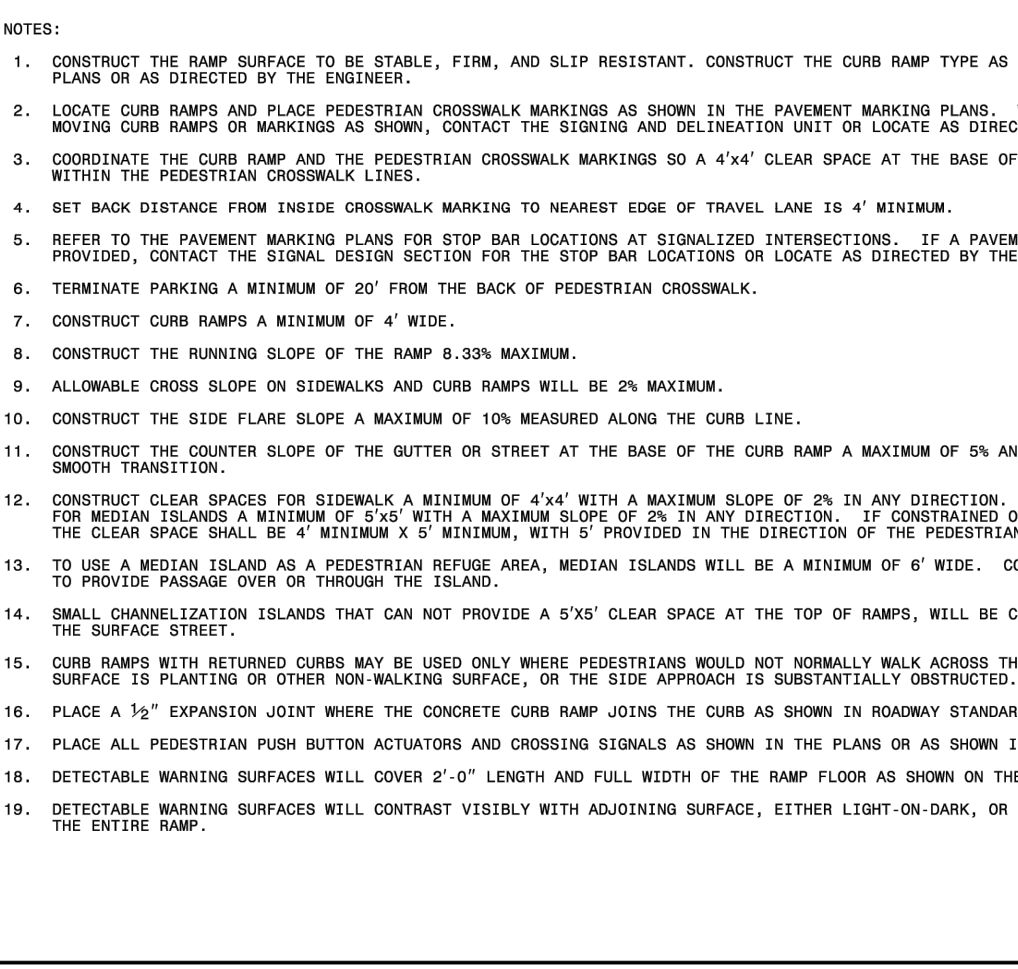
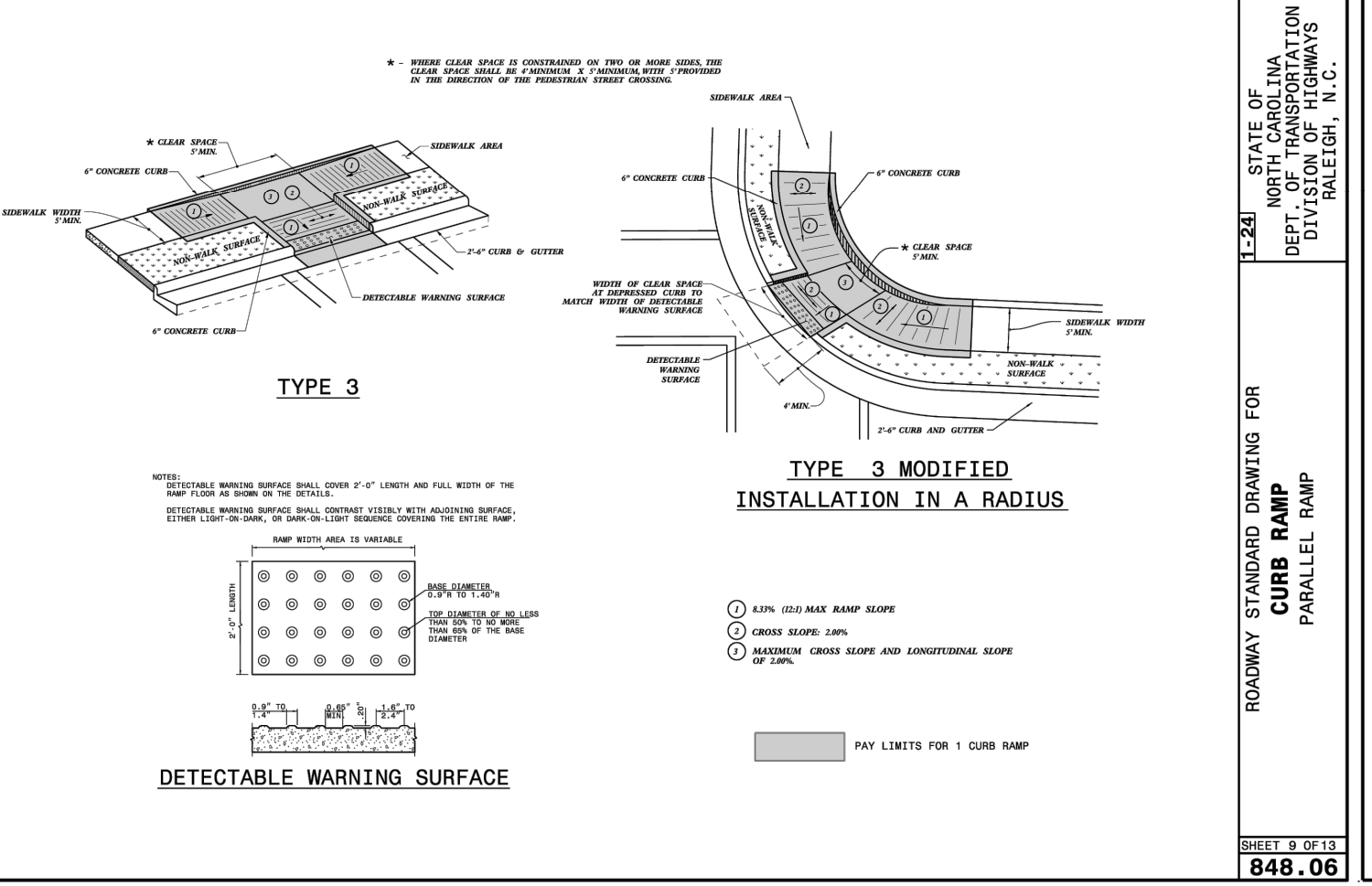
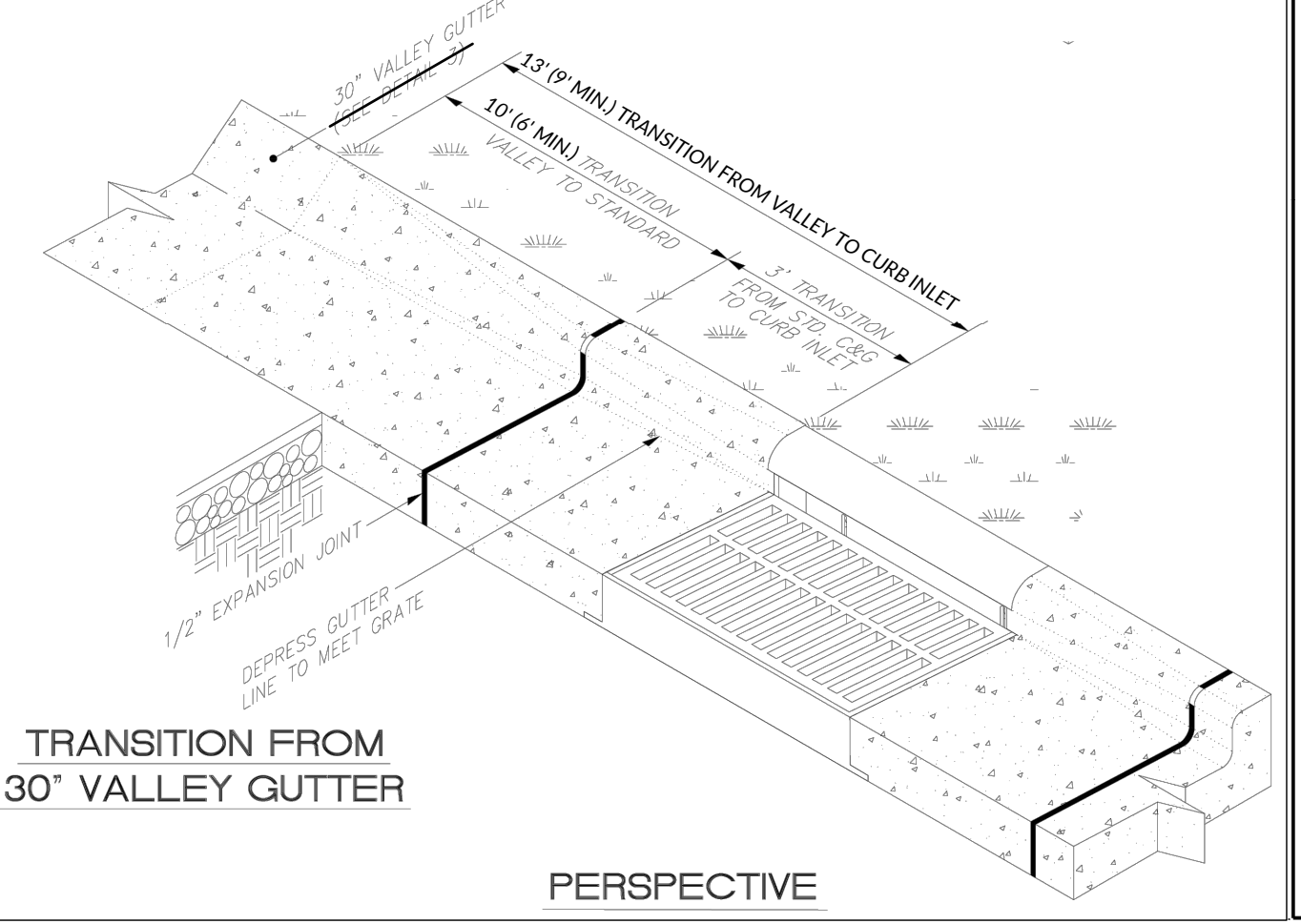
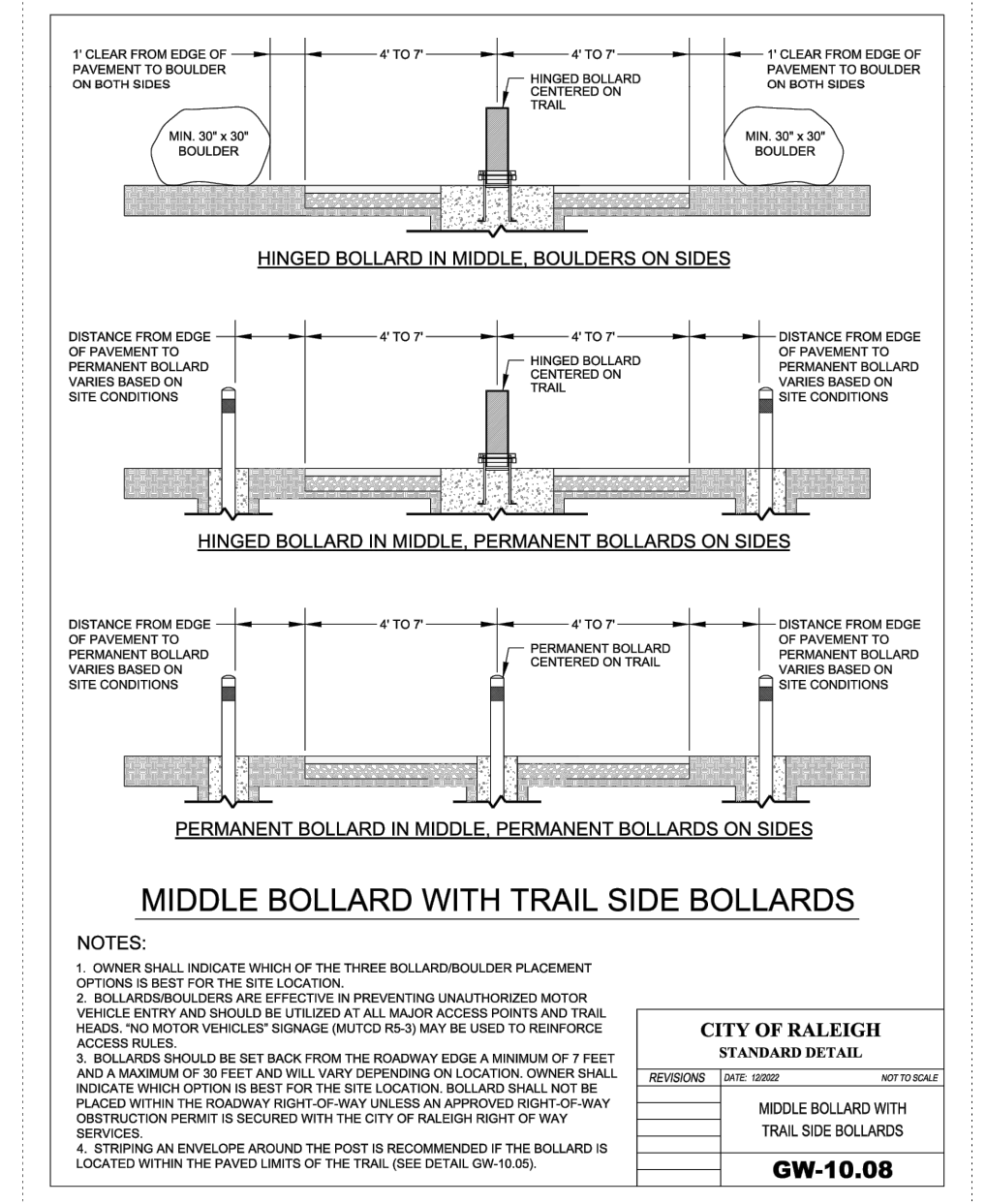
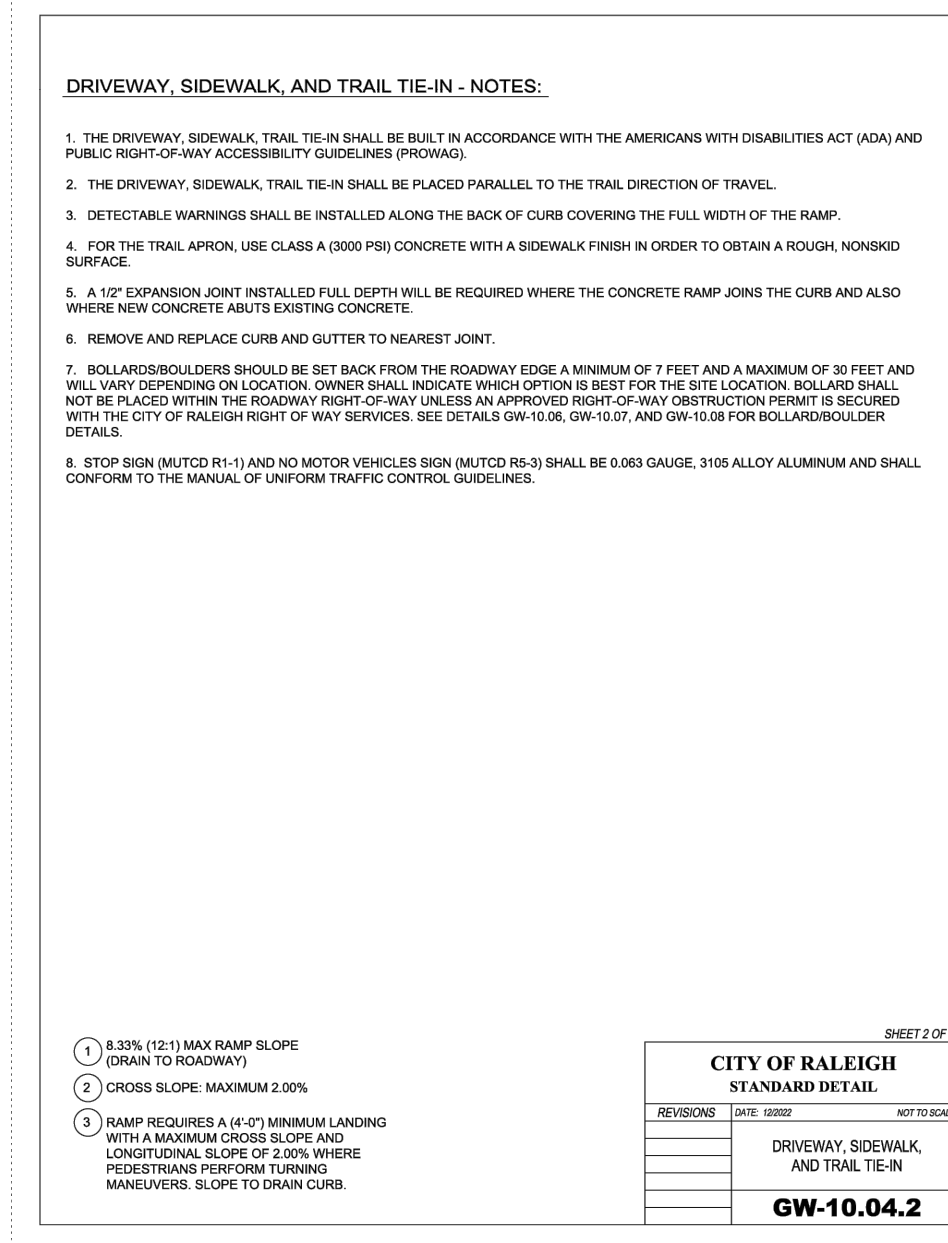
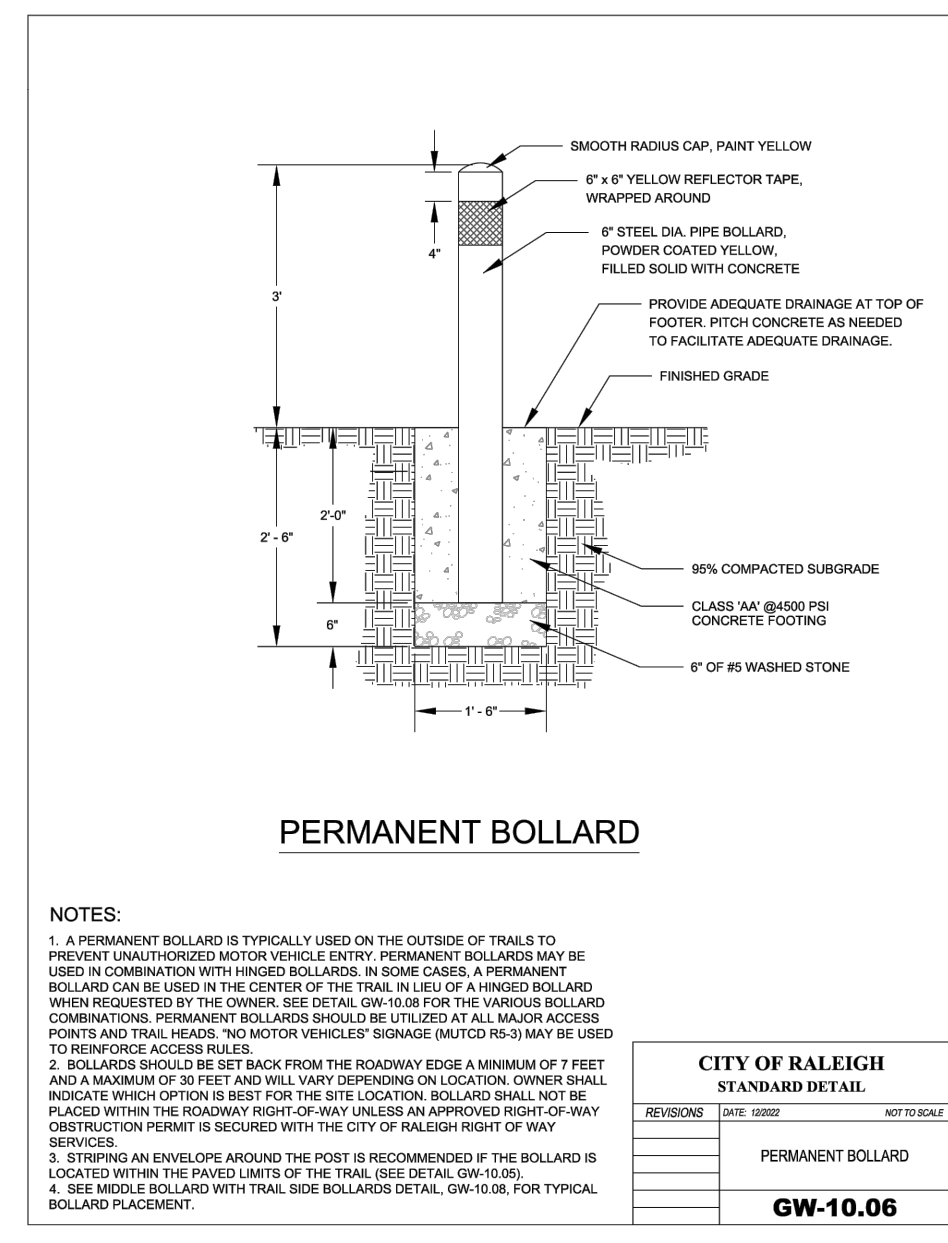
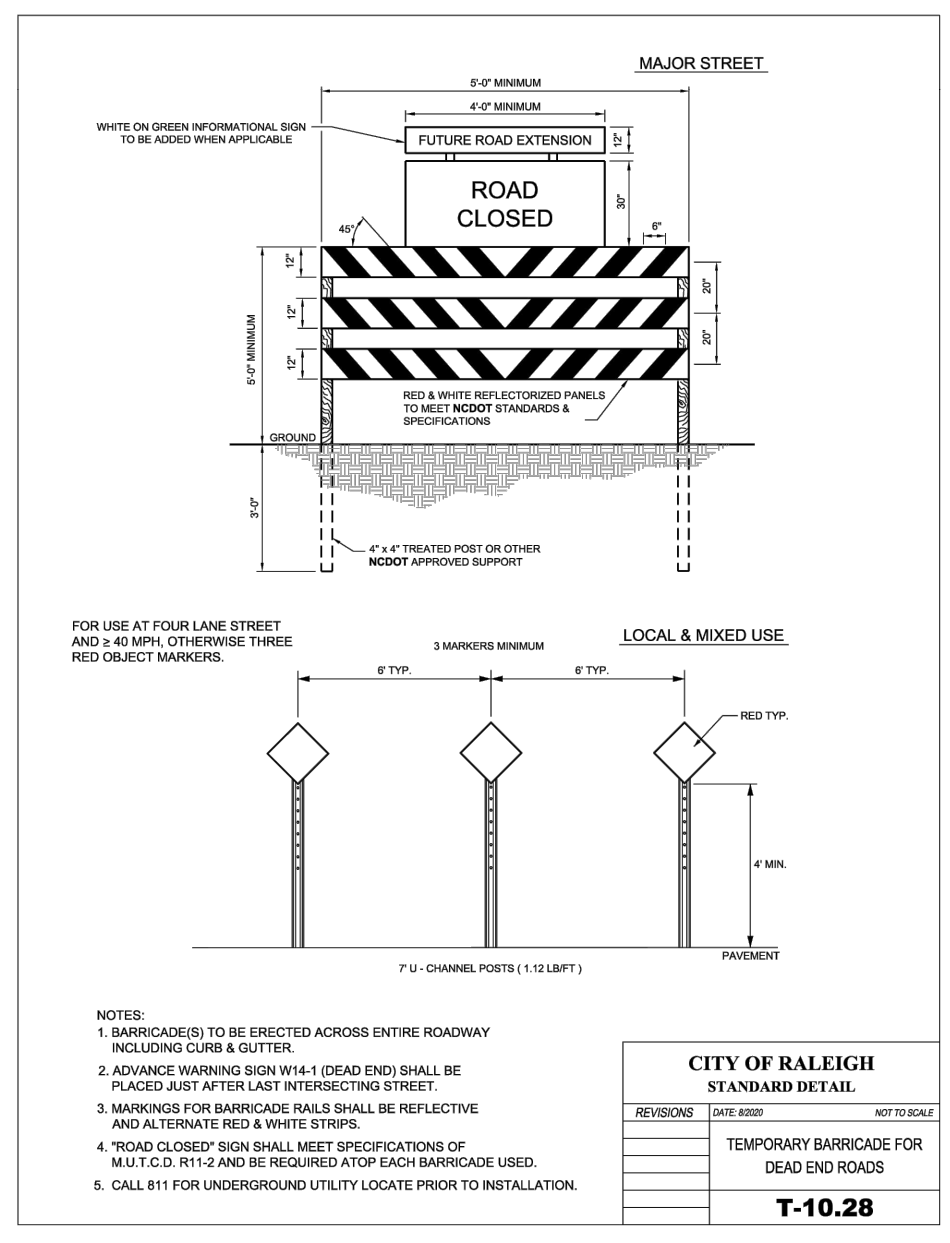
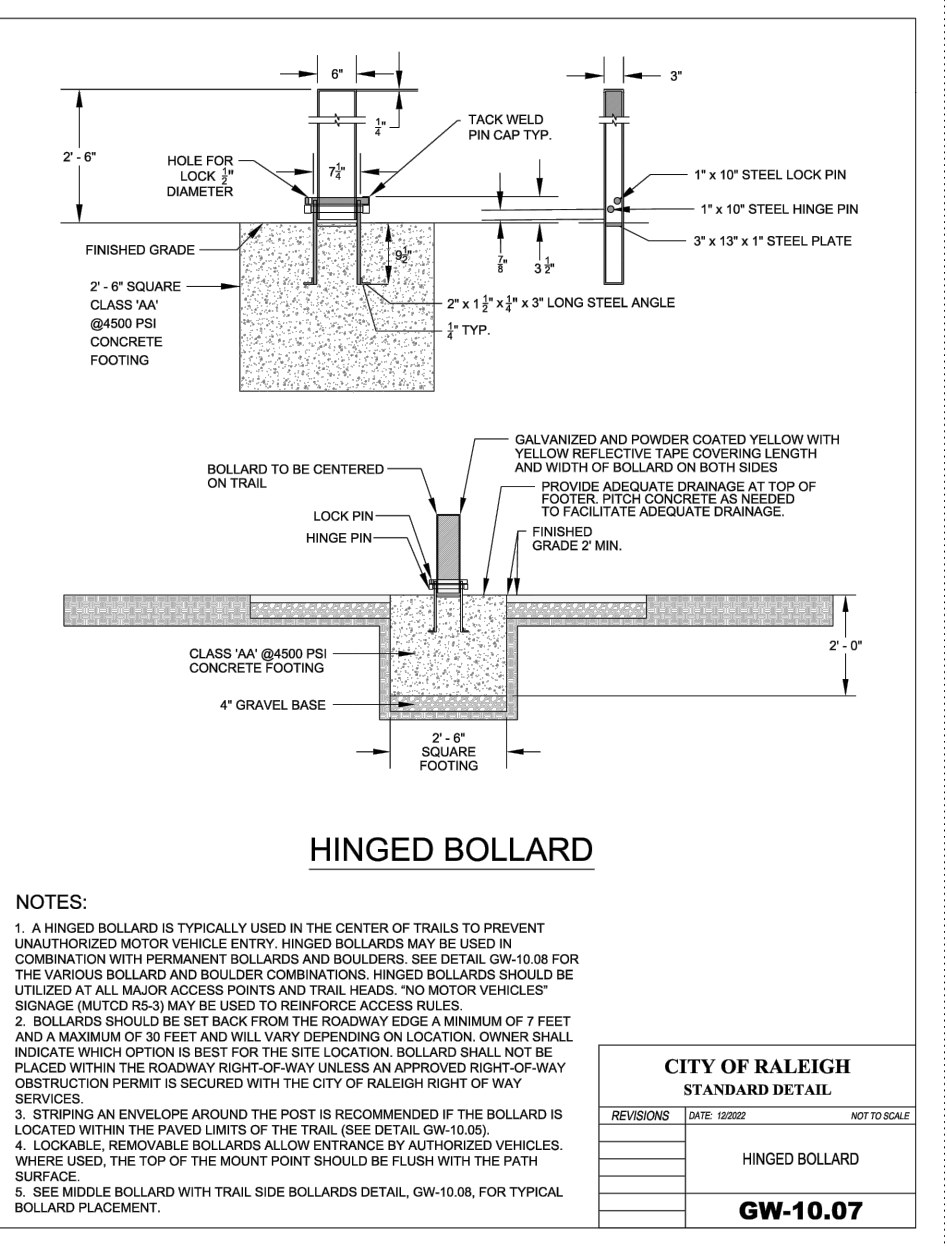
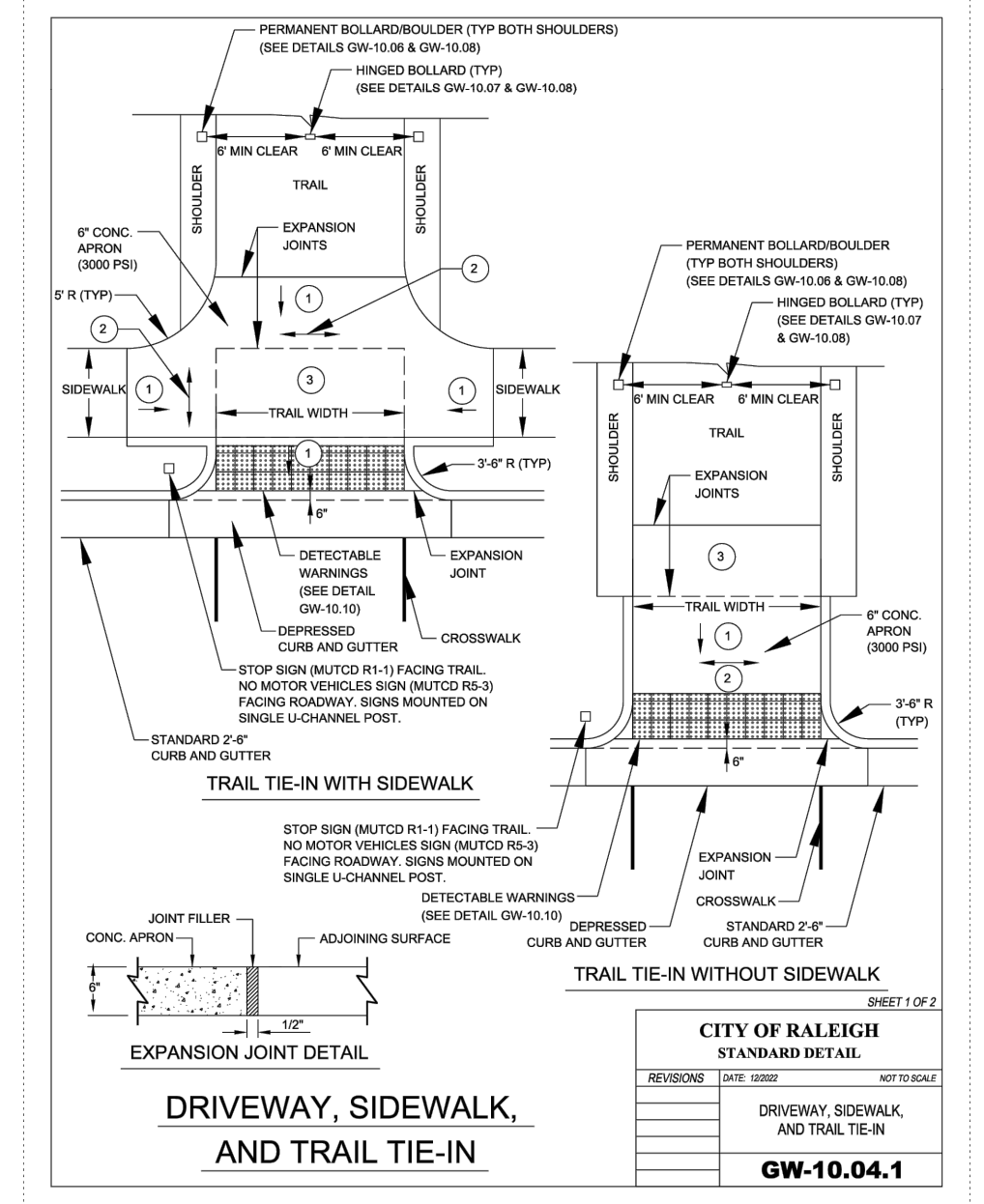
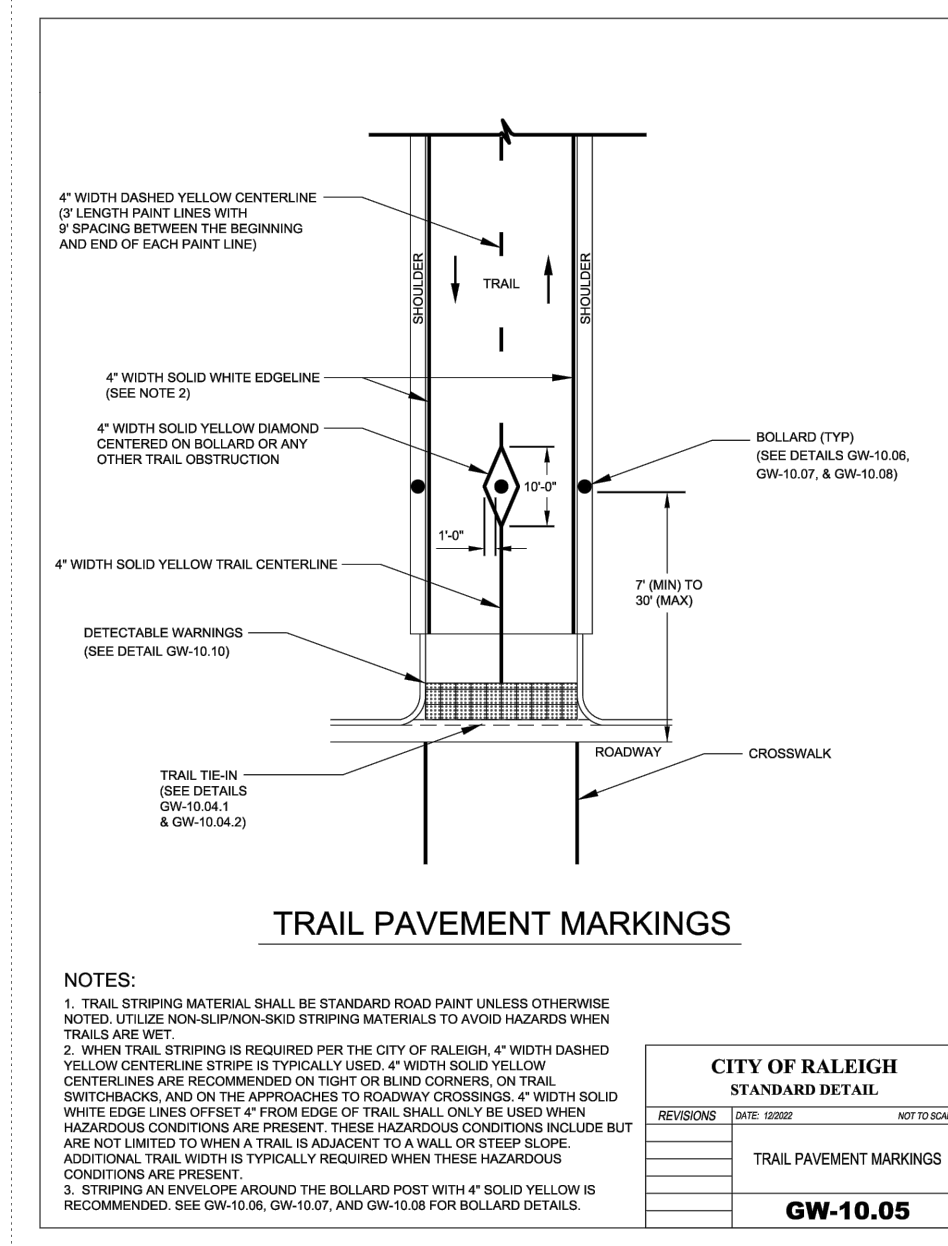
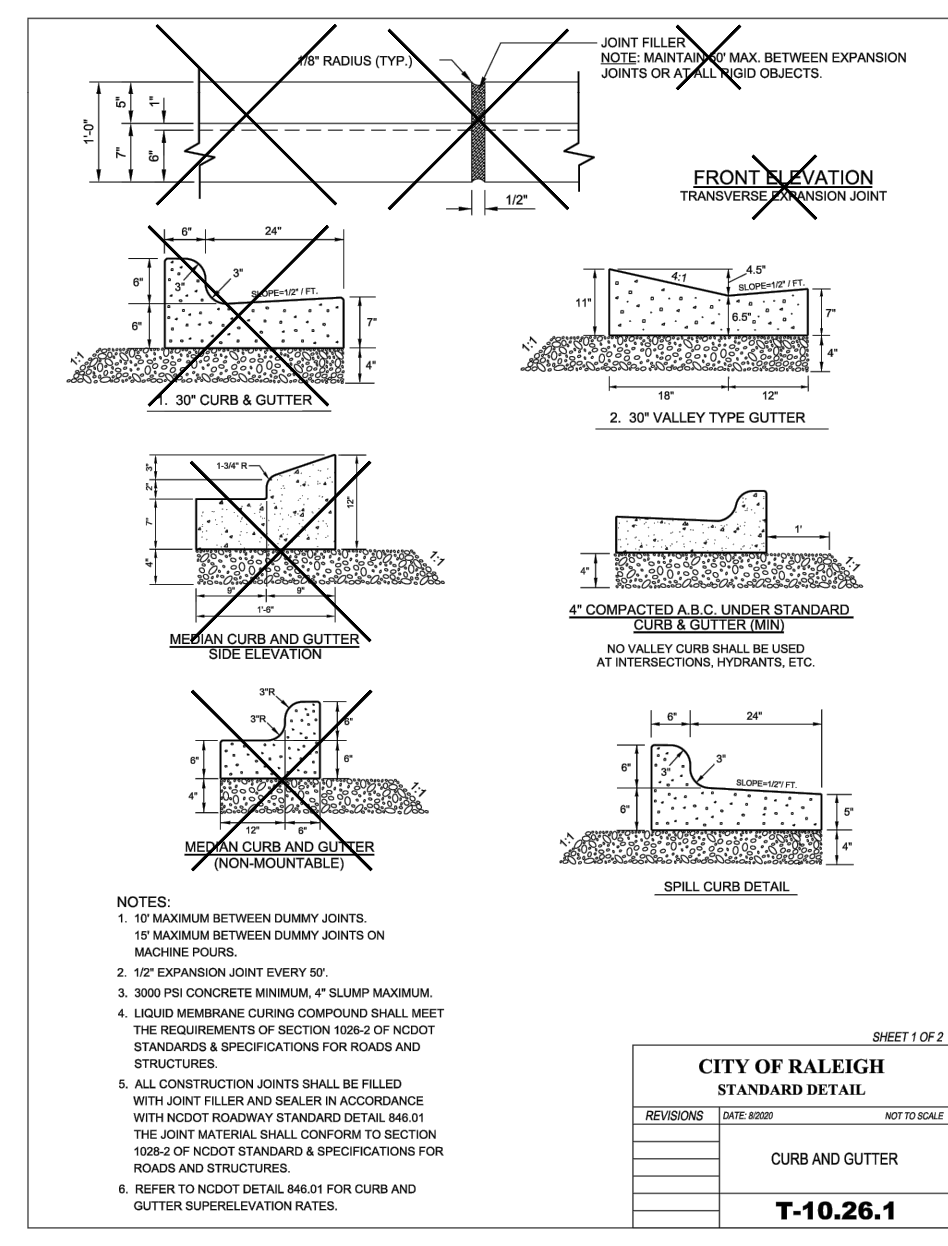
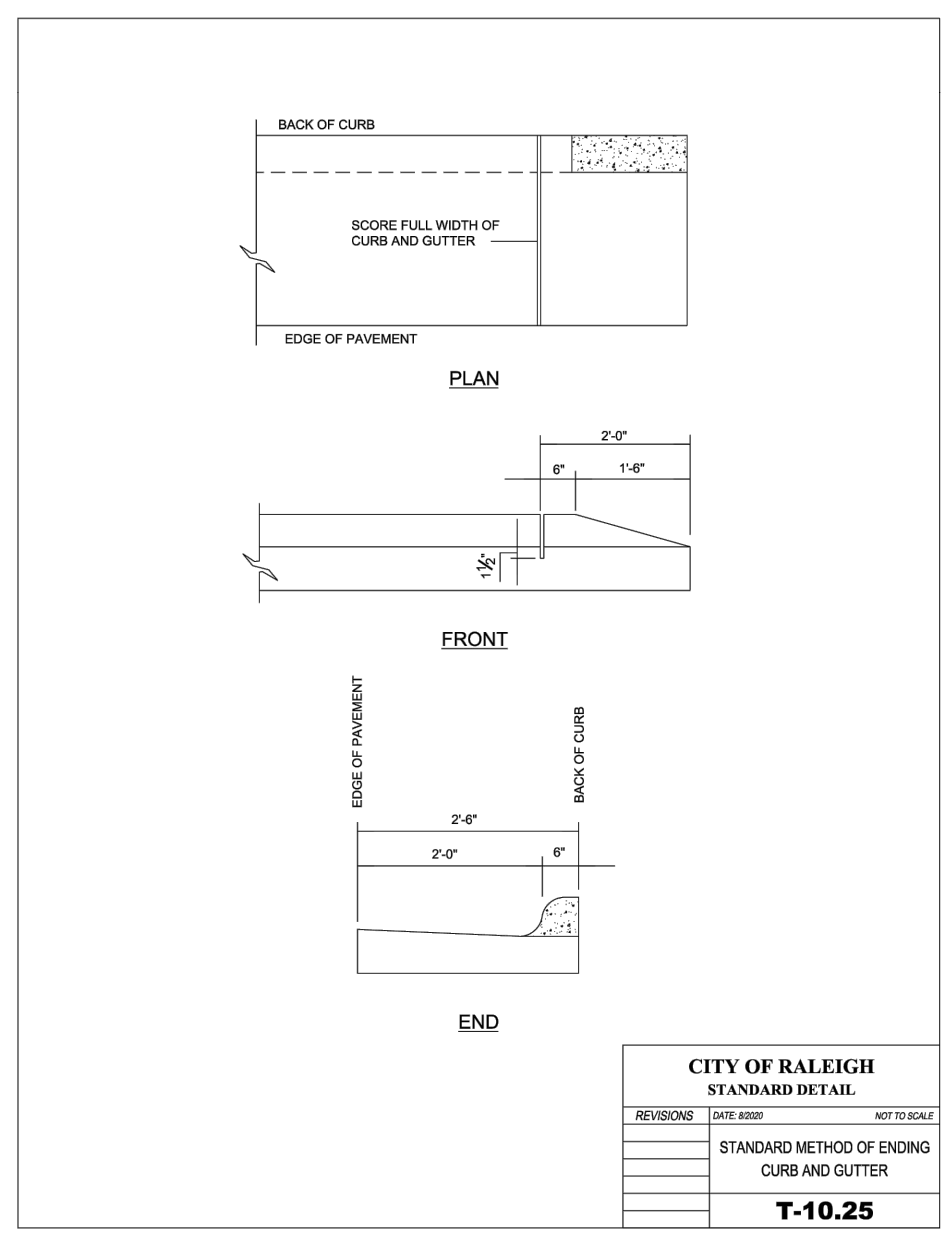
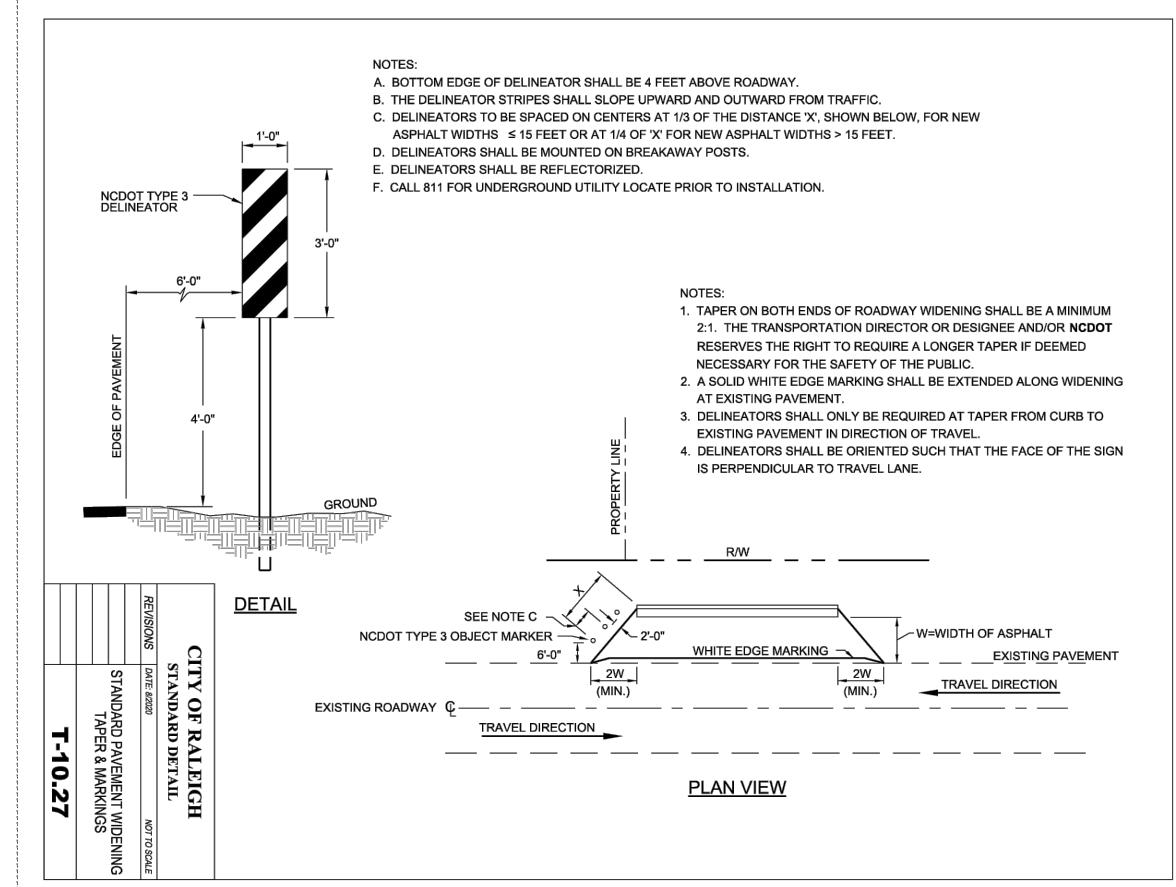
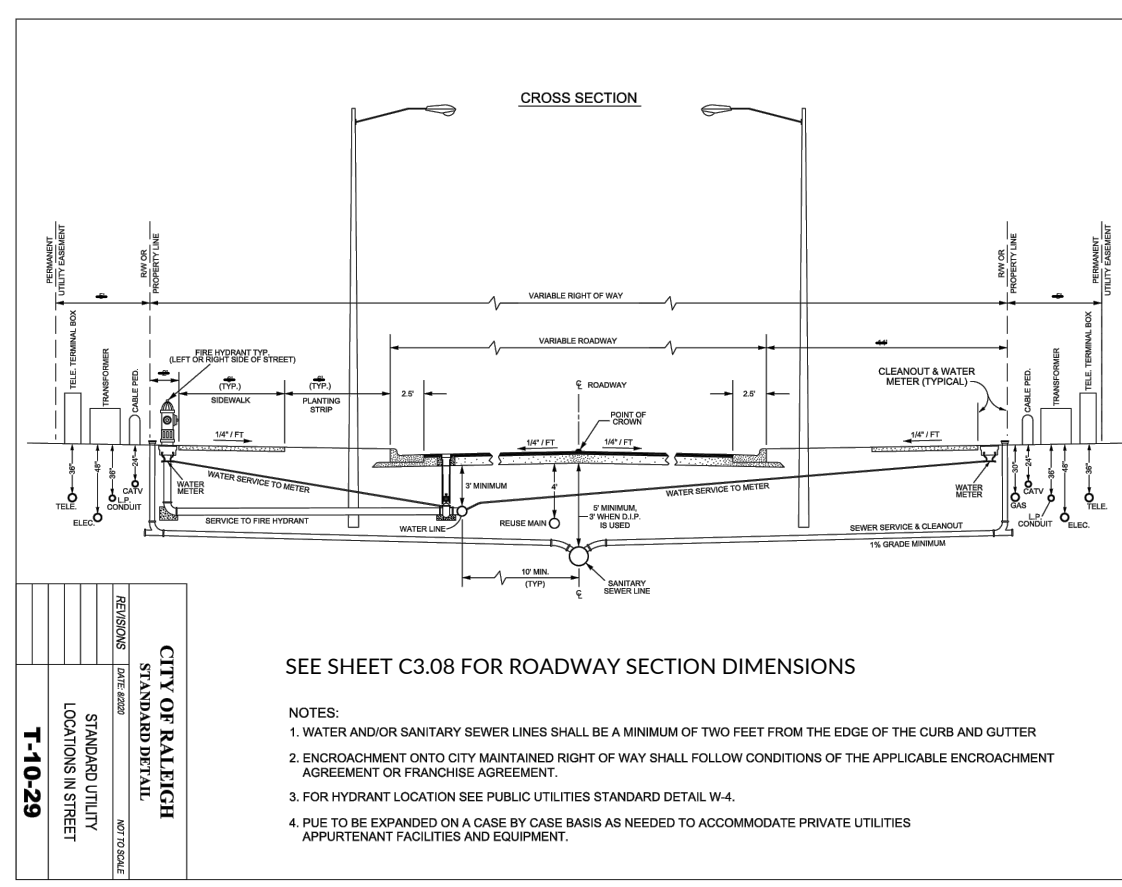
- NOTES
- TRASH RACK DETAIL BASED ON POMONA PIPE PRODUCTS "STANDARD ALUMINUM BAR & ANGLE PEAKED ROOF TRASH RACK WITH ONE QUADRANT HINGED FOR MANWAY ACCESS TO FIT 48"x48" I.D. CONCRETE RISER WITH 6" OR 8" THICK WALLS".
 - TRASH RACK TO BE POWDER-COATED BLACK.
 - REQUIRES SS HARDWARE TO ATTACH TO RISER.

4' TRASH RACK
NOT TO SCALE

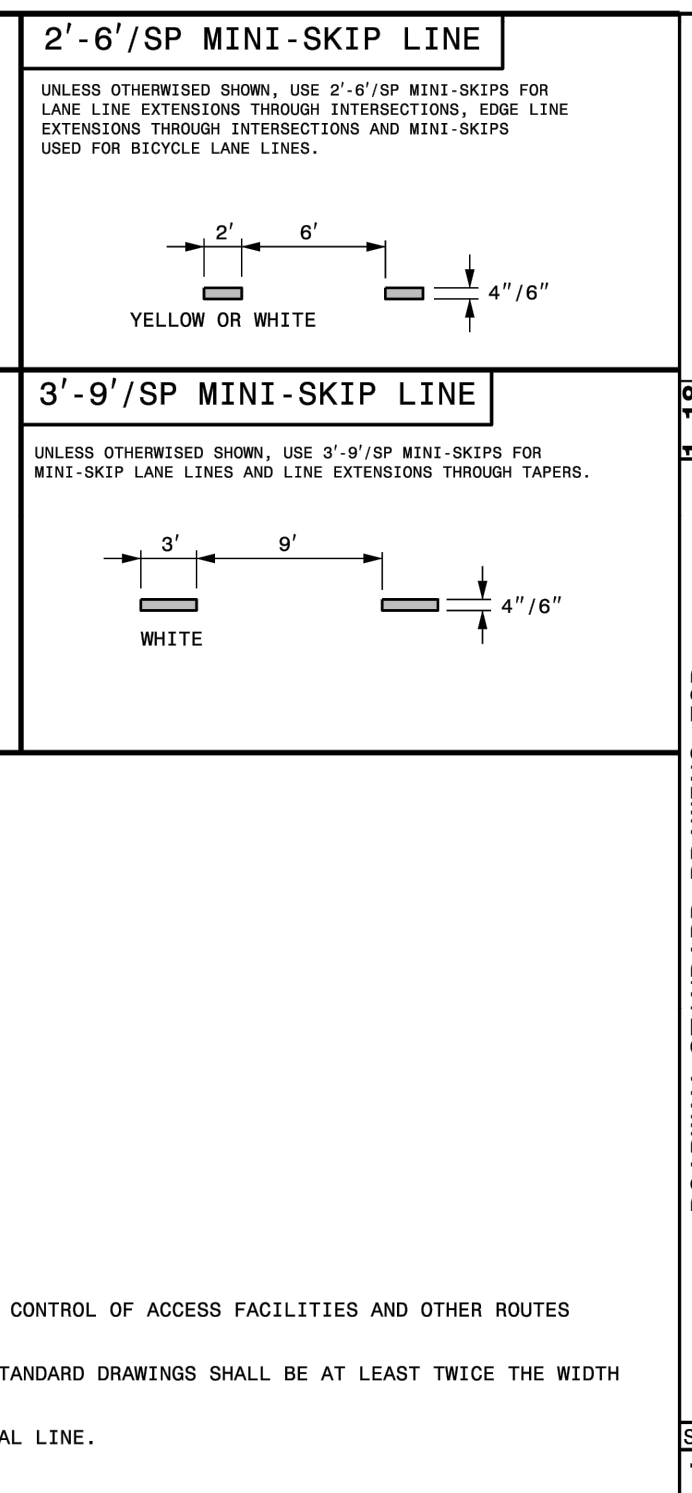
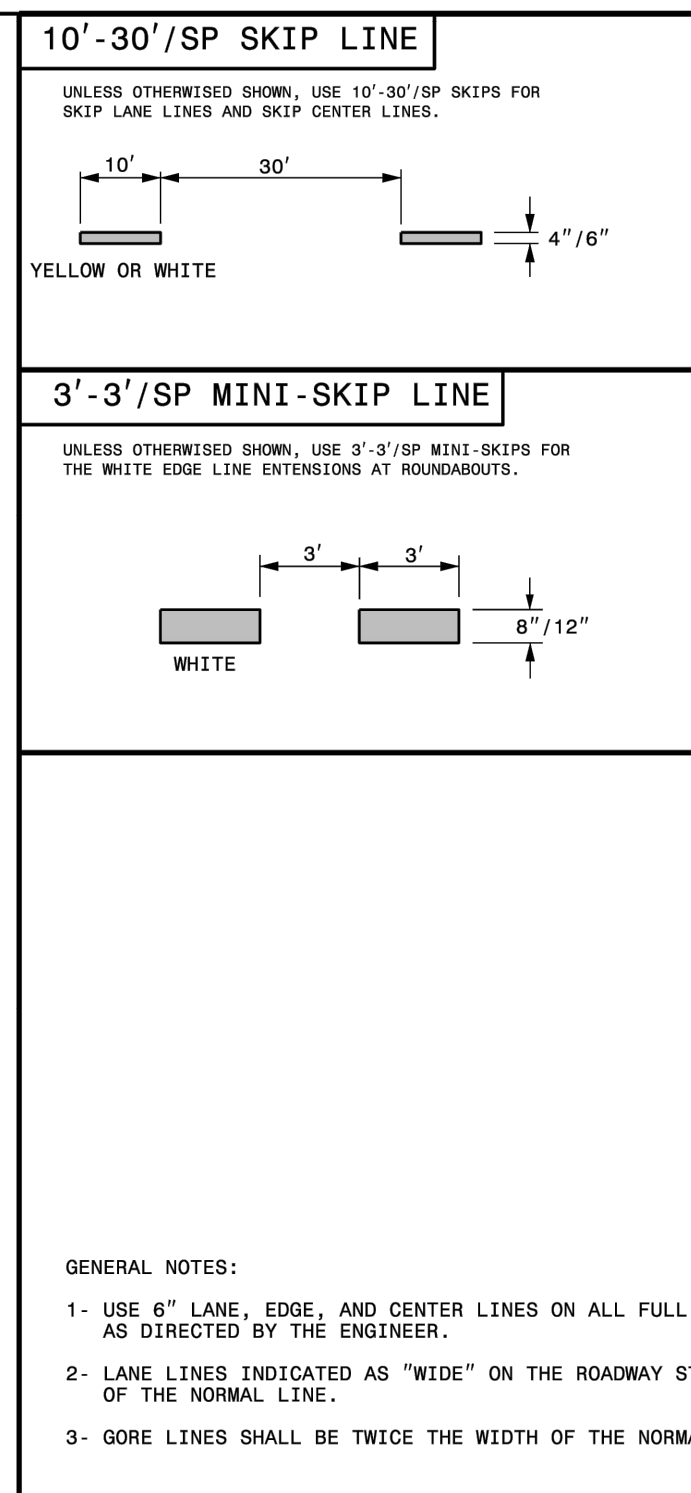
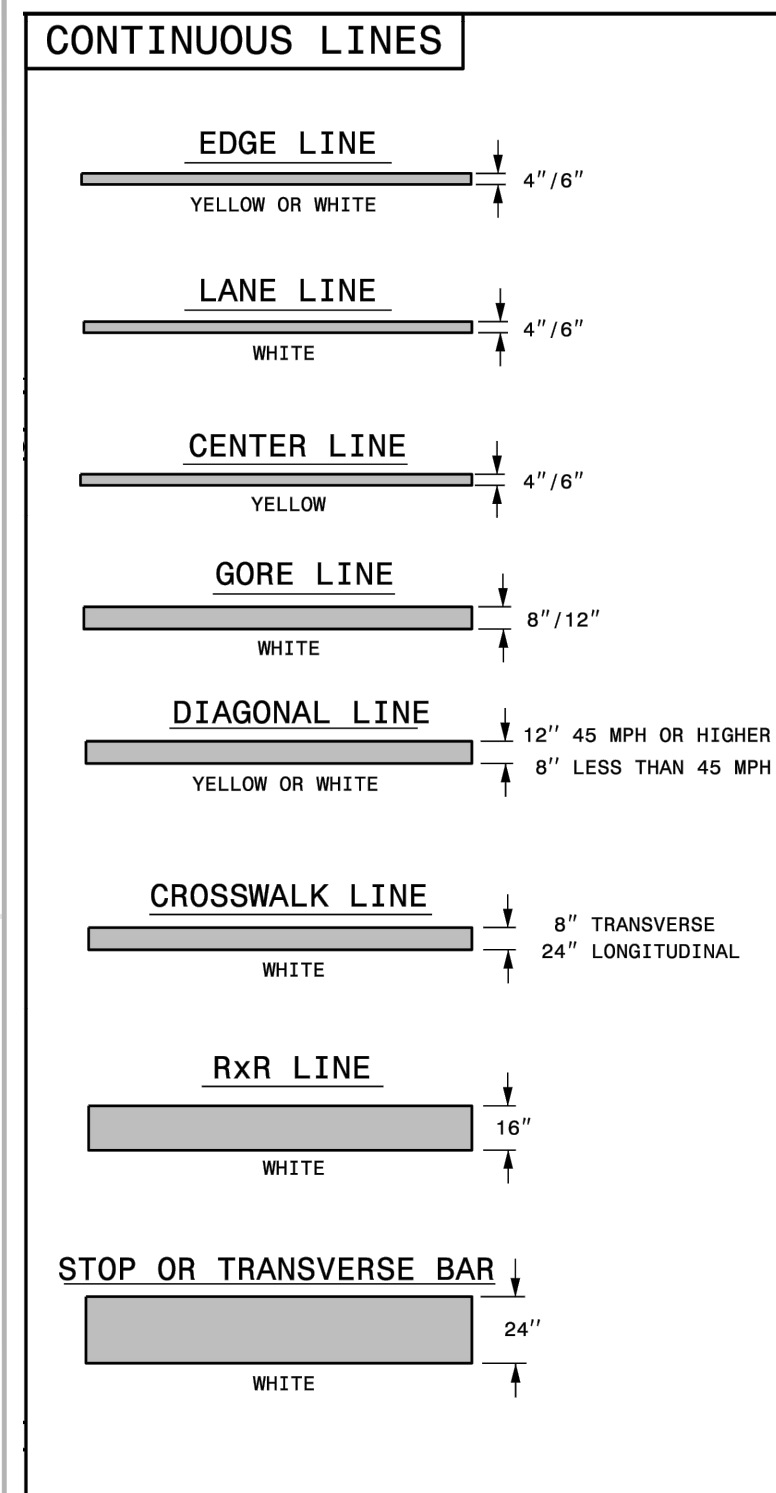


- NOTES
- TRASH RACK DETAIL BASED ON POMONA PIPE PRODUCTS "STANDARD ALUMINUM BAR & ANGLE PEAKED ROOF TRASH RACK WITH ONE QUADRANT HINGED FOR MANWAY ACCESS TO FIT 60"x60" I.D. CONCRETE RISER WITH 6" OR 8" THICK WALLS".
 - TRASH RACK TO BE POWDER-COATED BLACK.
 - REQUIRES SS HARDWARE TO ATTACH TO RISER.

5' TRASH RACK
NOT TO SCALE



J:\2025\0045_Pub\WithersRavenel\Assemblies\CID-24-06\Drawings\Site Construction\CID-24-06-01-01-01-01.dwg, Thursday, January 2, 2025 10:36:52 AM, T-CAD

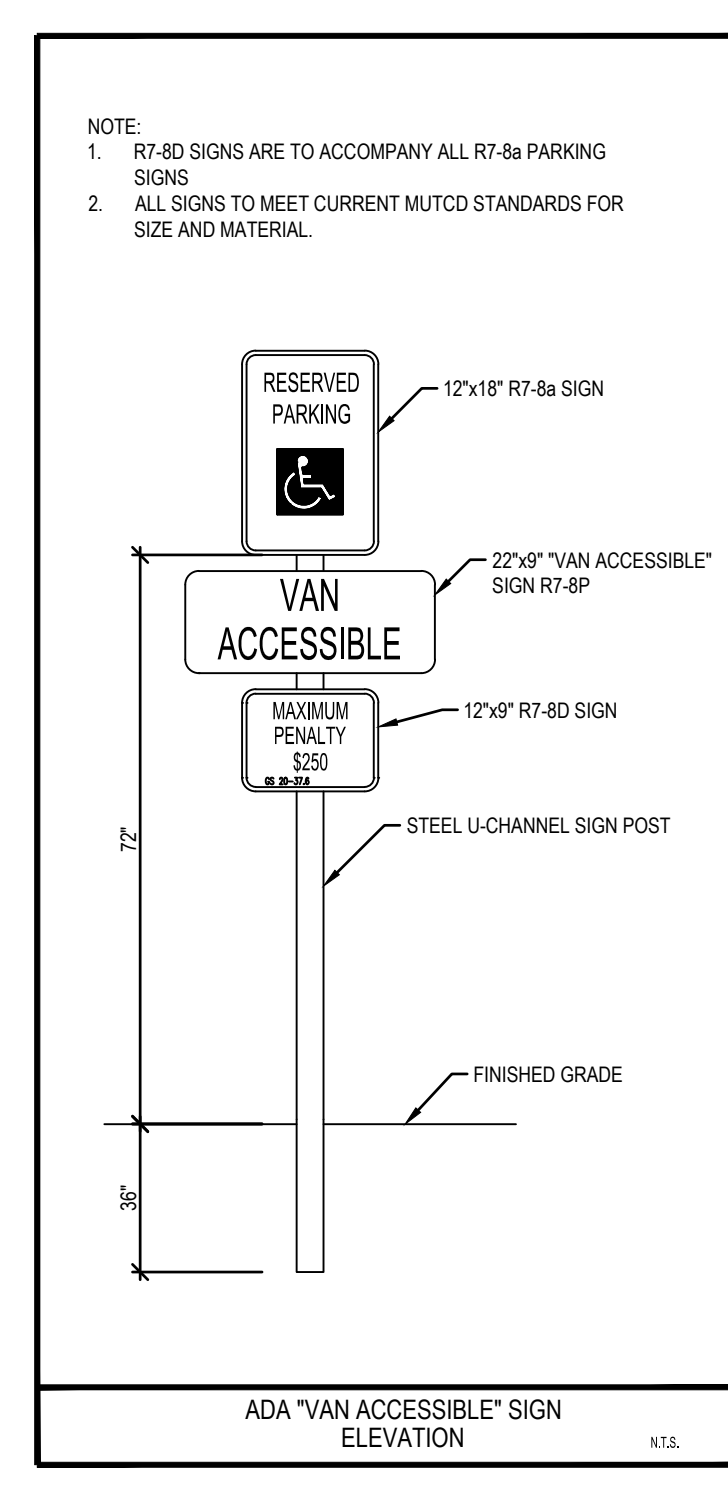


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N. C.

ROADWAY STANDARD DRAWING FOR PAVEMENT MARKINGS LINE TYPES AND OFFSETS

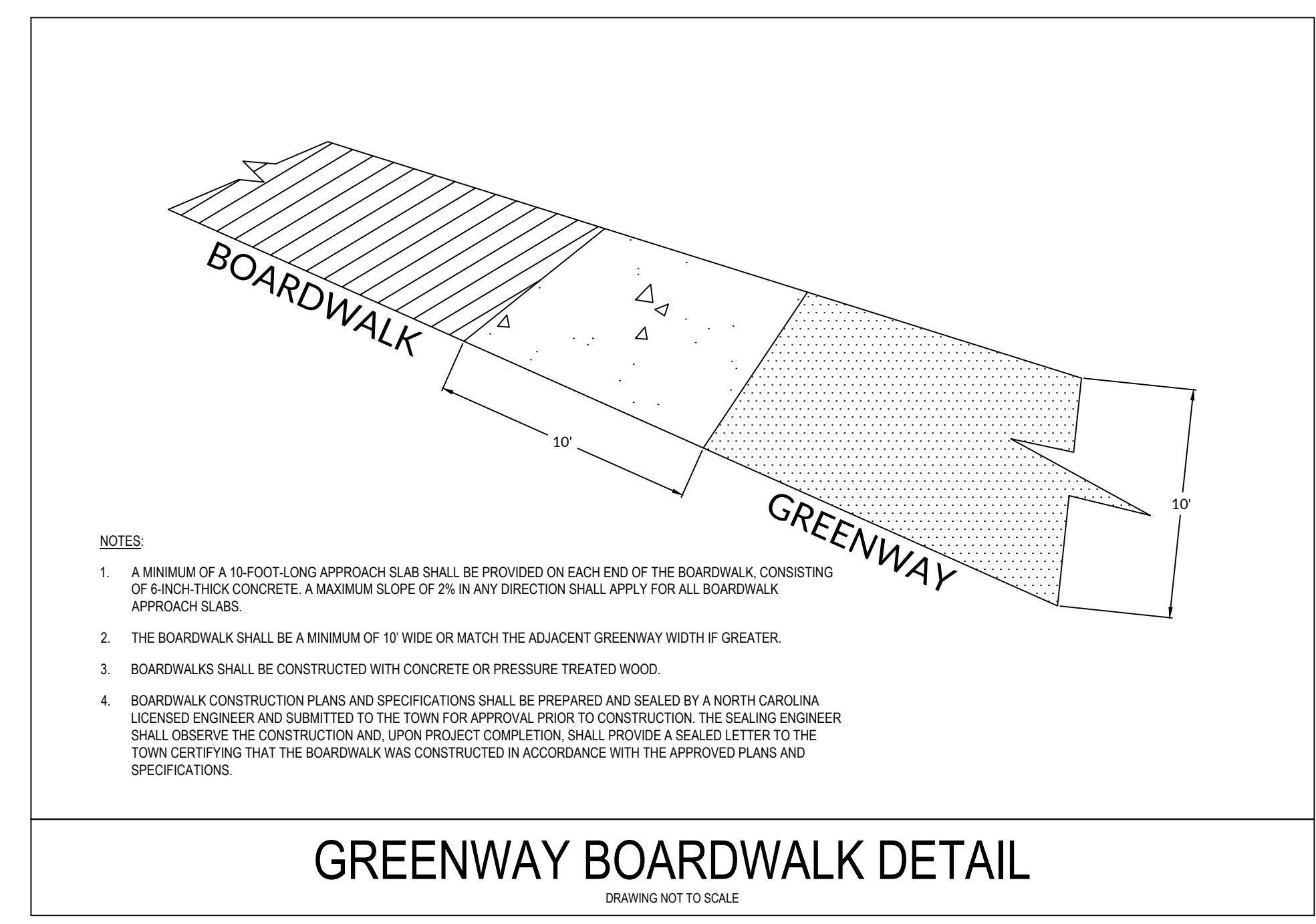
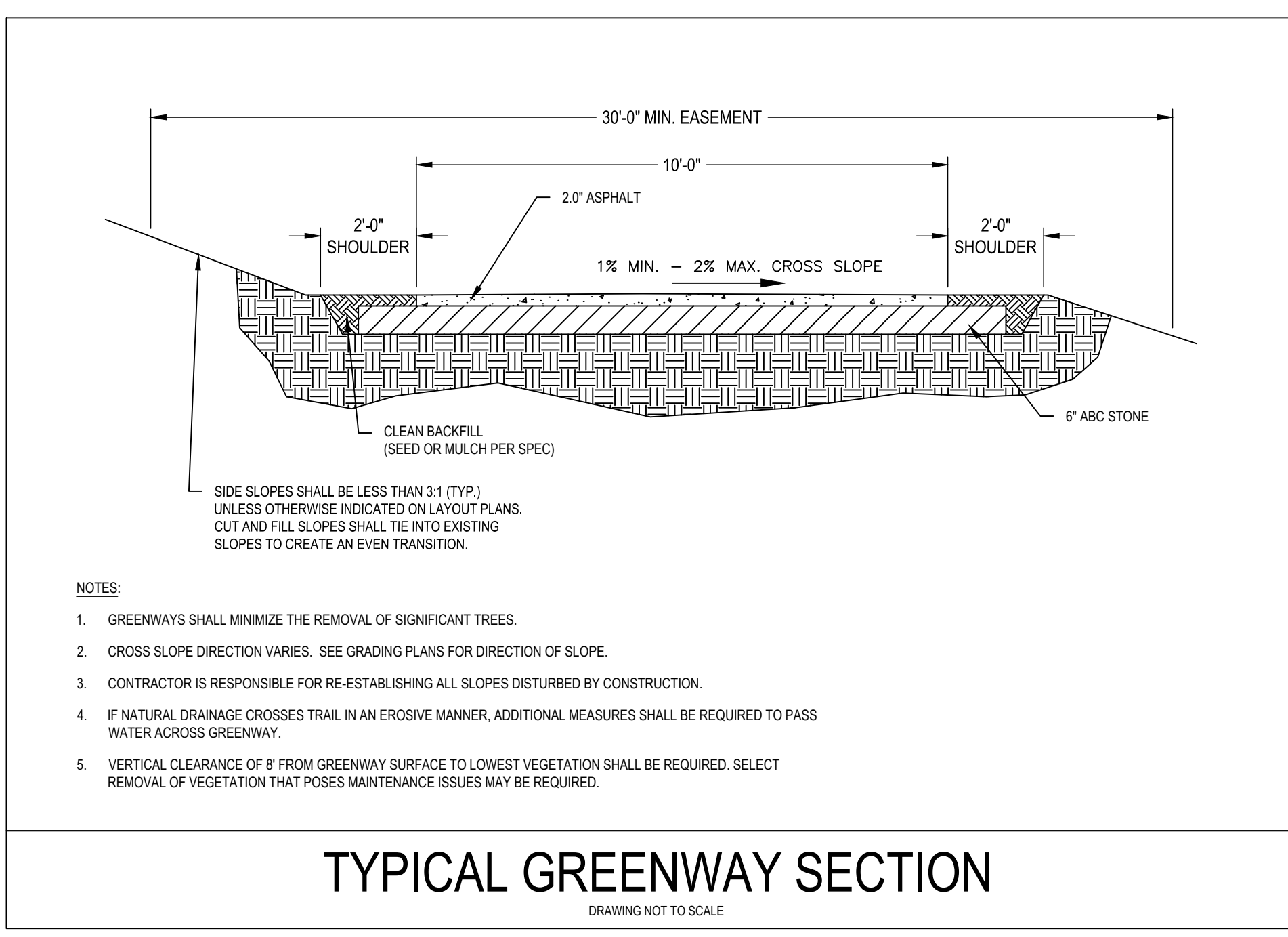
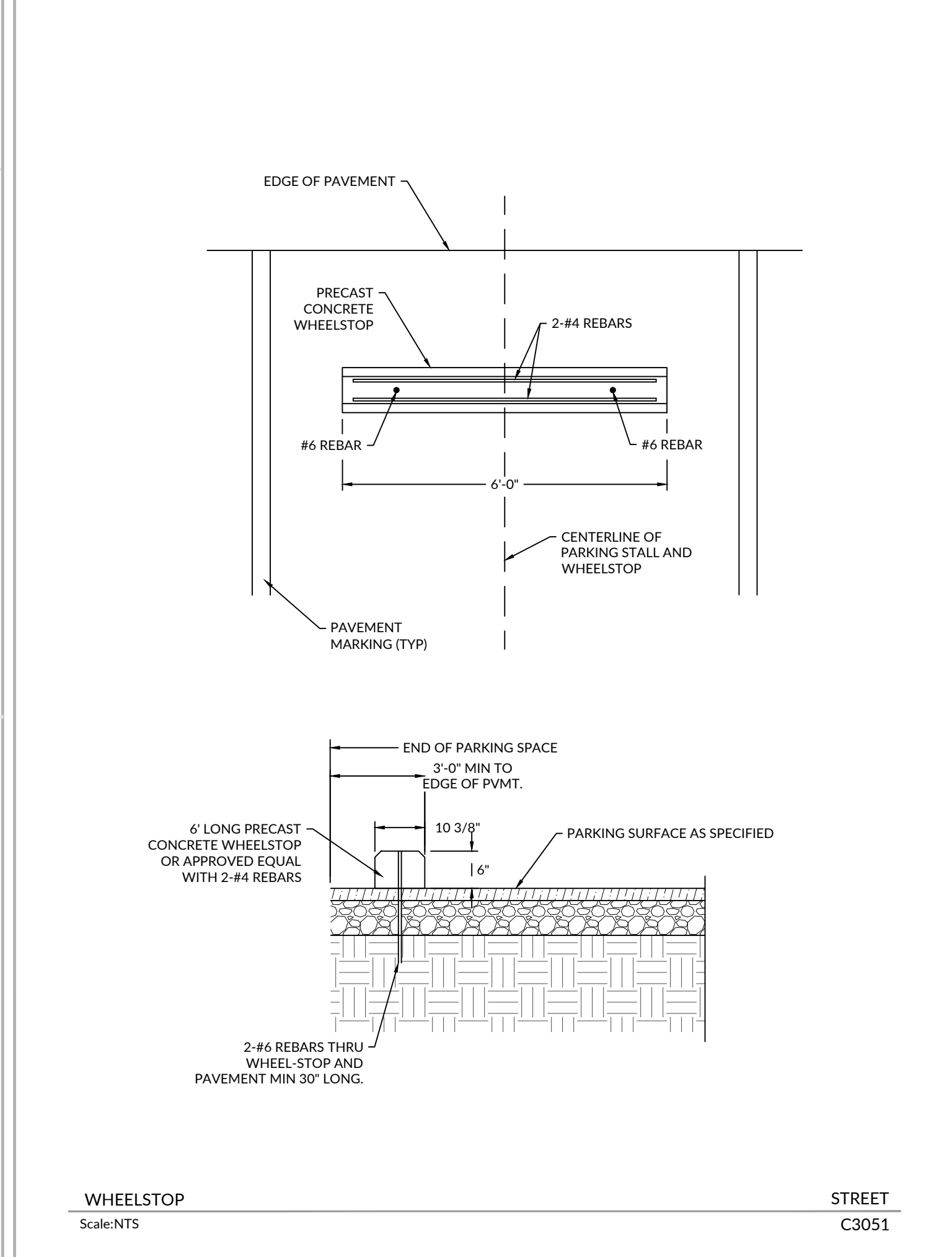
SHEET 1 OF 2
1205.01

- GENERAL NOTES:
- 1- USE 8" LANE, EDGE, AND CENTER LINES ON ALL FULL CONTROL OF ACCESS FACILITIES AND OTHER ROUTES AS DIRECTED BY THE ENGINEER.
 - 2- LANE LINES INDICATED AS "WIDE" ON THE ROADWAY STANDARD DRAWINGS SHALL BE AT LEAST TWICE THE WIDTH OF THE NORMAL LINE.
 - 3- GORE LINES SHALL BE TWICE THE WIDTH OF THE NORMAL LINE.

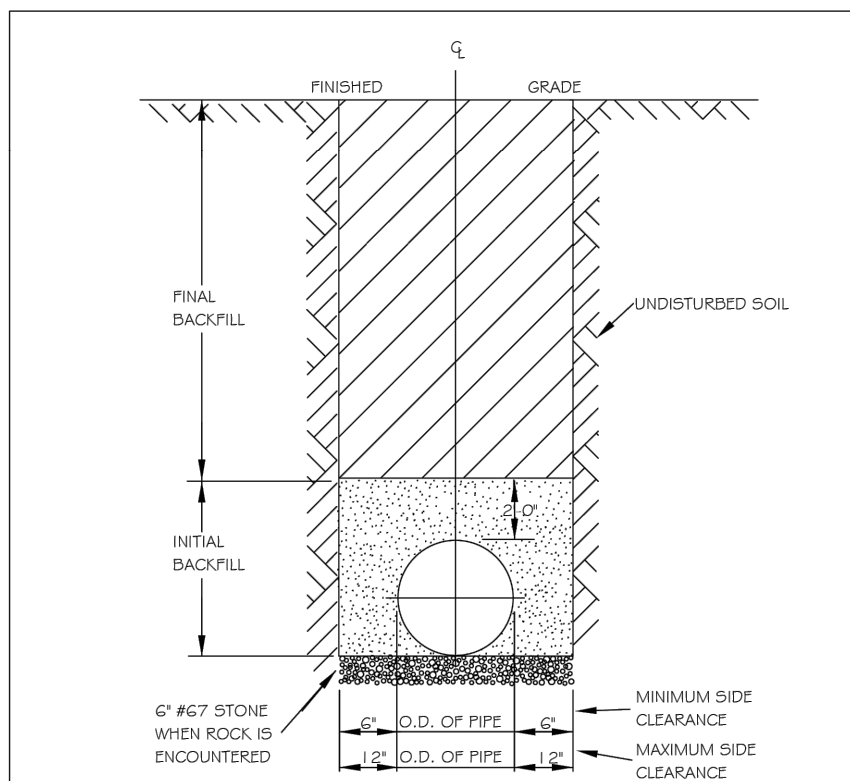


NOTE:

1. R7-8D SIGNS ARE TO ACCOMPANY ALL R7-8a PARKING SIGNS
2. ALL SIGNS TO MEET CURRENT MUTCD STANDARDS FOR SIZE AND MATERIAL.

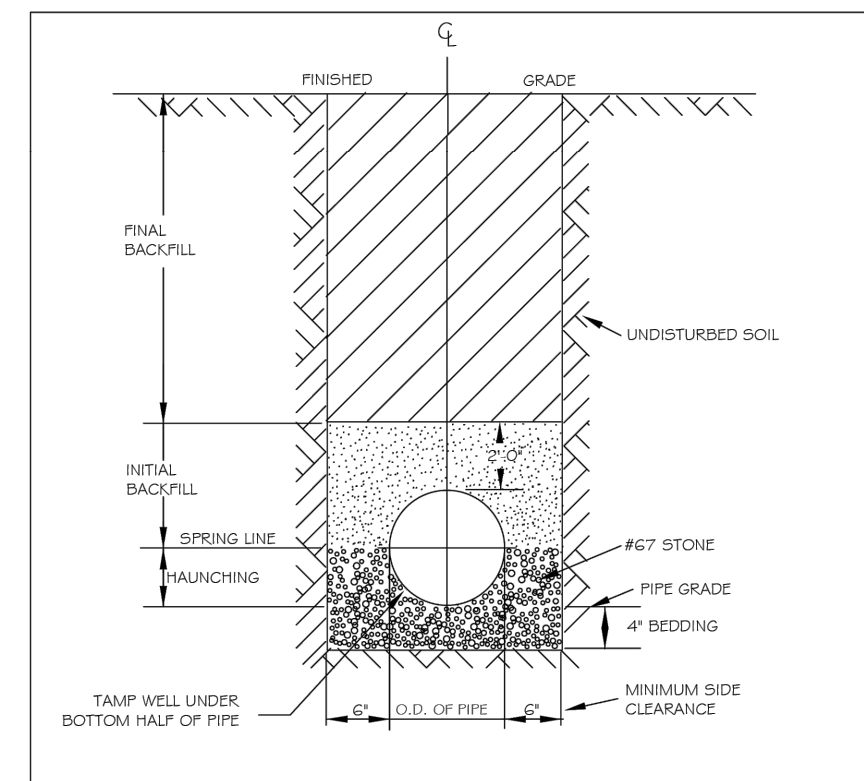


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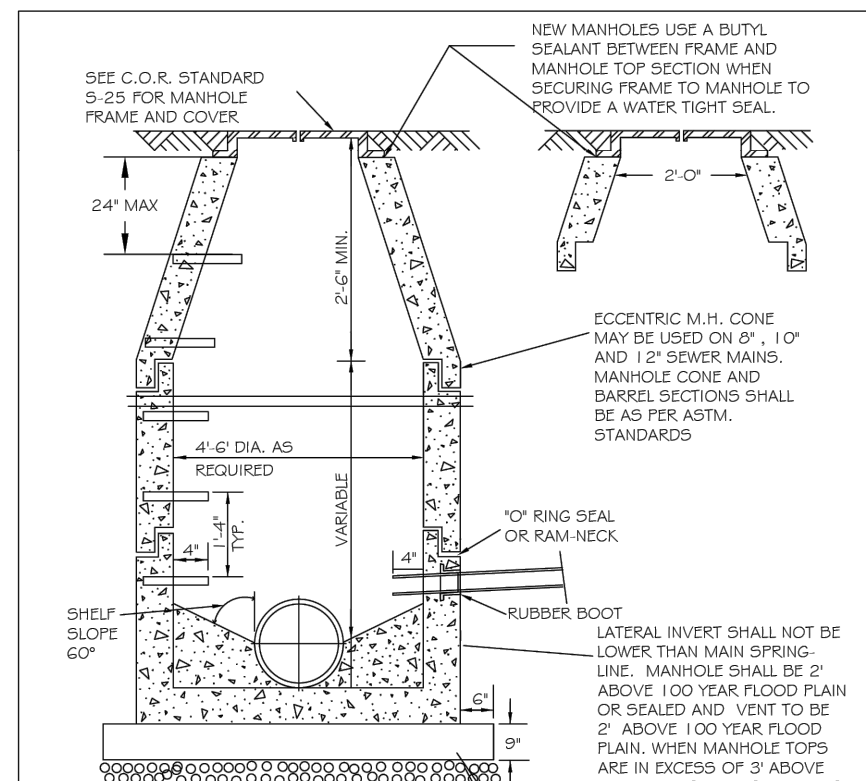
NOTES:
 1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
 5. ACHIEVE 90% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.
 6. IF IN CASHEMENT 4" TOPSOIL, AND 12" CLEAN SELECT FILL MAY BE REQUIRED.
 7. NO BOULDERS 6" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-4		8/21/07			
		3/30/00			



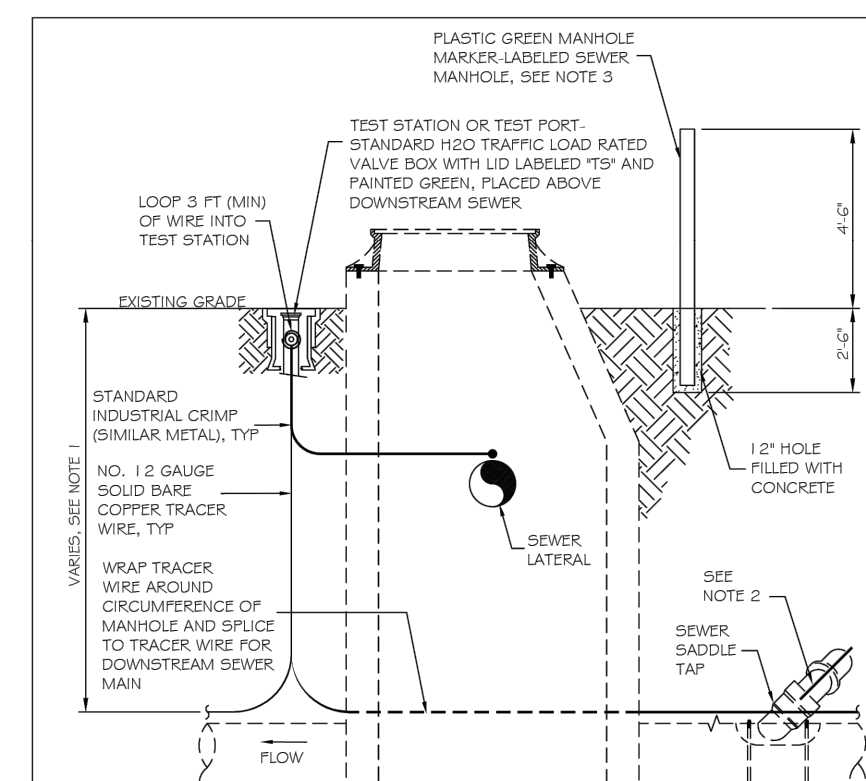
NOTES:
 1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
 5. ACHIEVE 90% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.
 6. IF IN CASHEMENT 4" TOPSOIL, AND 12" CLEAN SELECT FILL MAY BE REQUIRED.
 7. NO BOULDERS 6" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
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		3/16/06			
		7-2-02			
		8/21/00			
		3-30-00			



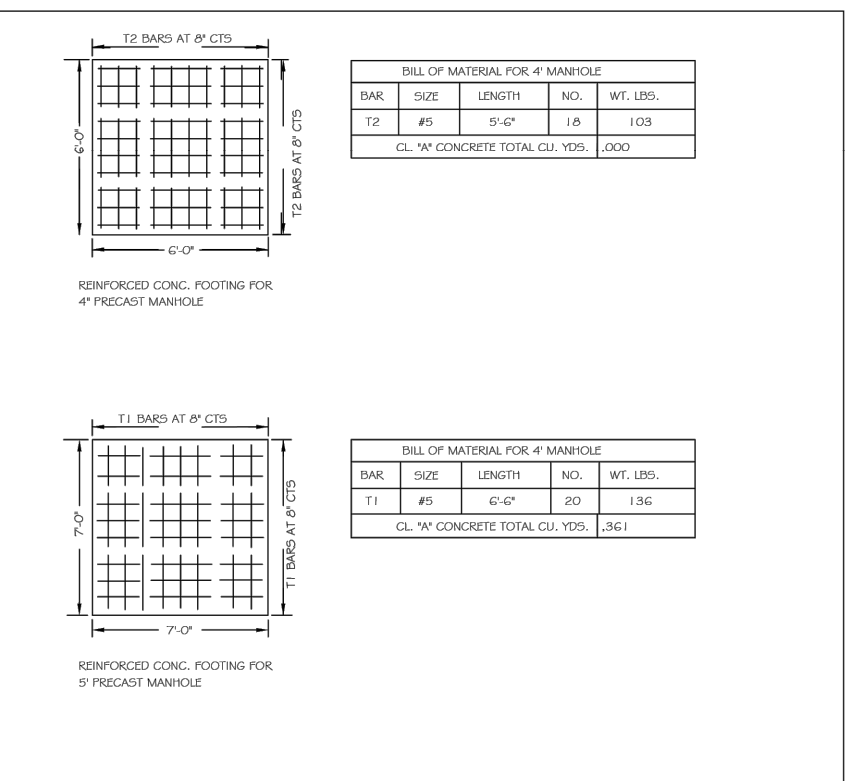
NOTES:
 1. ALL MANHOLE FRAMES SHALL BE CAST IN PLACE GALVANIZED PIPE FLANGE WITH VENTED STACK.
 2. VENT SHALL BE FACTORY WELDED FABRICATED AND 'HOT DIPPED' GALVANIZED.
 3. PIPE, 'HANDLED YEAR FLOOD' ELEVATION.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD MANHOLE FRAME AND COVER					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-20		12/21/07			
		8/21/00			
		3-30-00			
		D.H.L.			
		6-16-06			



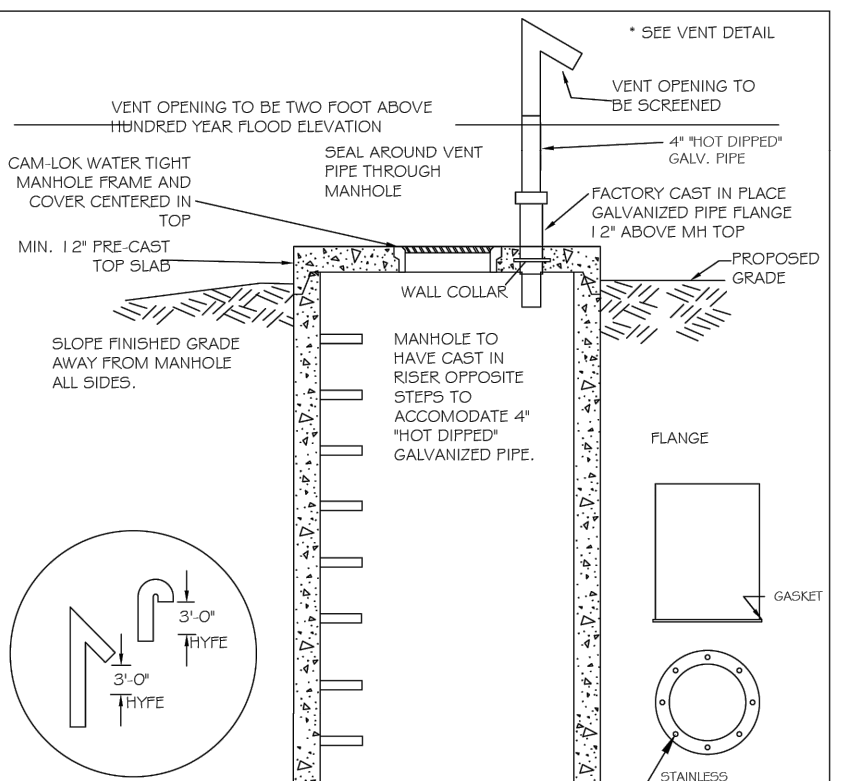
NOTES:
 1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8 FT, THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRE SHALL BE Laid PLAT AND SECURELY AFFIXED TO THE PIPE AT 10 FOOT INTERVALS FOR GRAVITY MAIN AND OR LATERAL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

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-20A		10/14/07			
		10/14/07			
		8/21/00			
		D.H.L.			
		6-16-06			



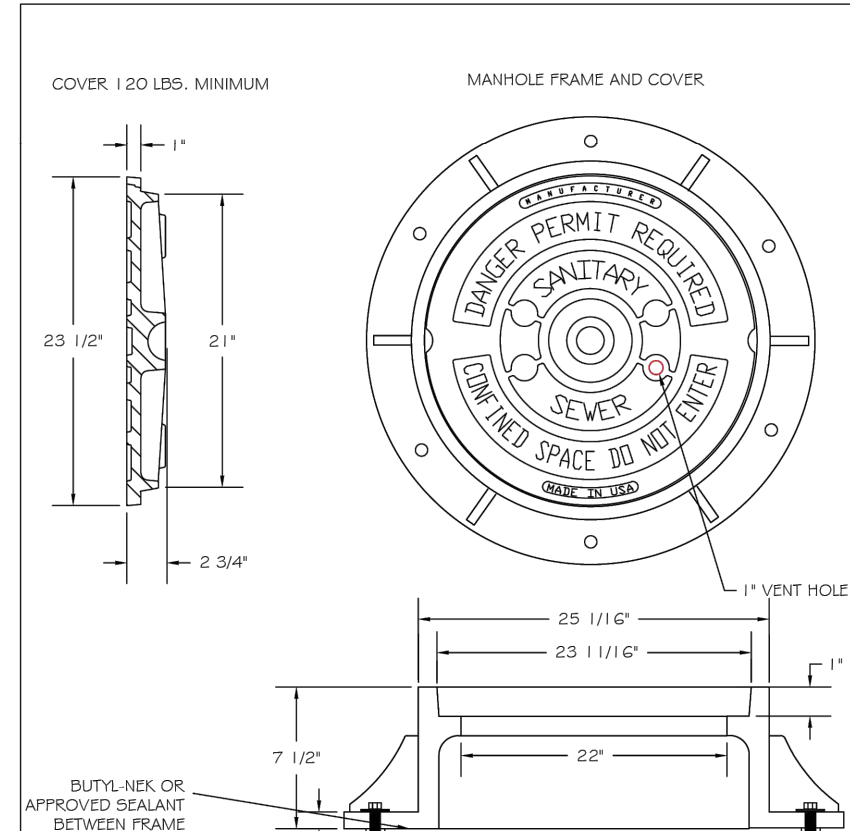
NOTES:
 1. VENT SHALL BE FACTORY WELDED FABRICATED AND 'HOT DIPPED' GALVANIZED.
 2. PIPE, 'HANDLED YEAR FLOOD' ELEVATION.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD MANHOLE COVER					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-25		3/11/07			
		3/30/00			
		D.H.L.			
		6-18-08			



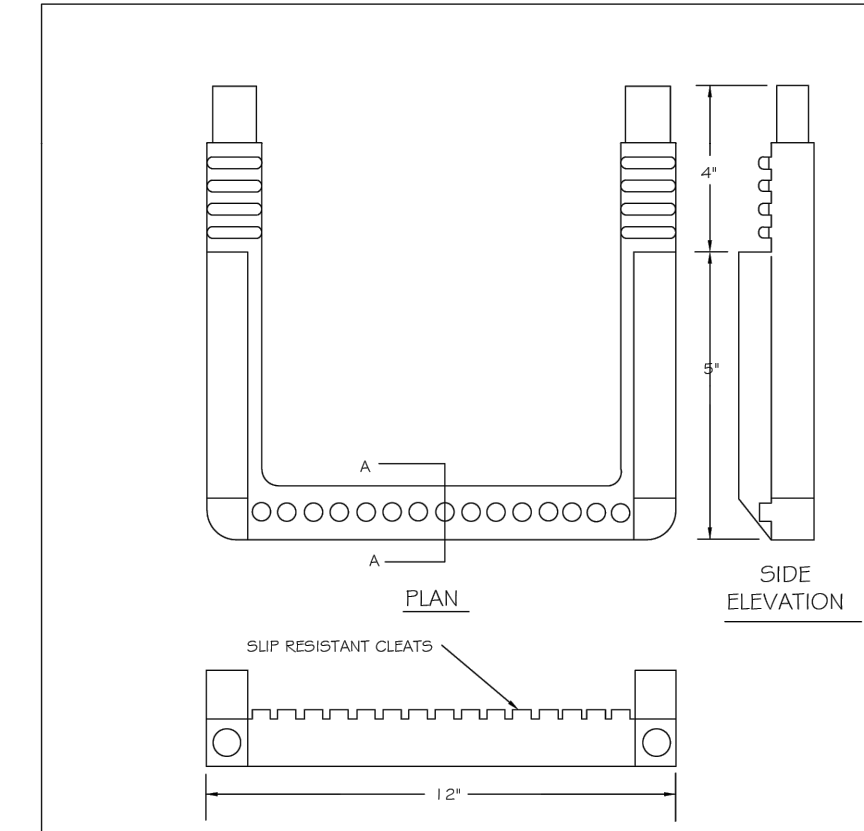
NOTES:
 1. VENT SHALL BE FACTORY WELDED FABRICATED AND 'HOT DIPPED' GALVANIZED.
 2. PIPE, 'HANDLED YEAR FLOOD' ELEVATION.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD SEAL TIGHT MANHOLE WITH VENTED STACK					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-24		3/11/07			
		3/30/00			
		D.H.L.			
		6-16-06			



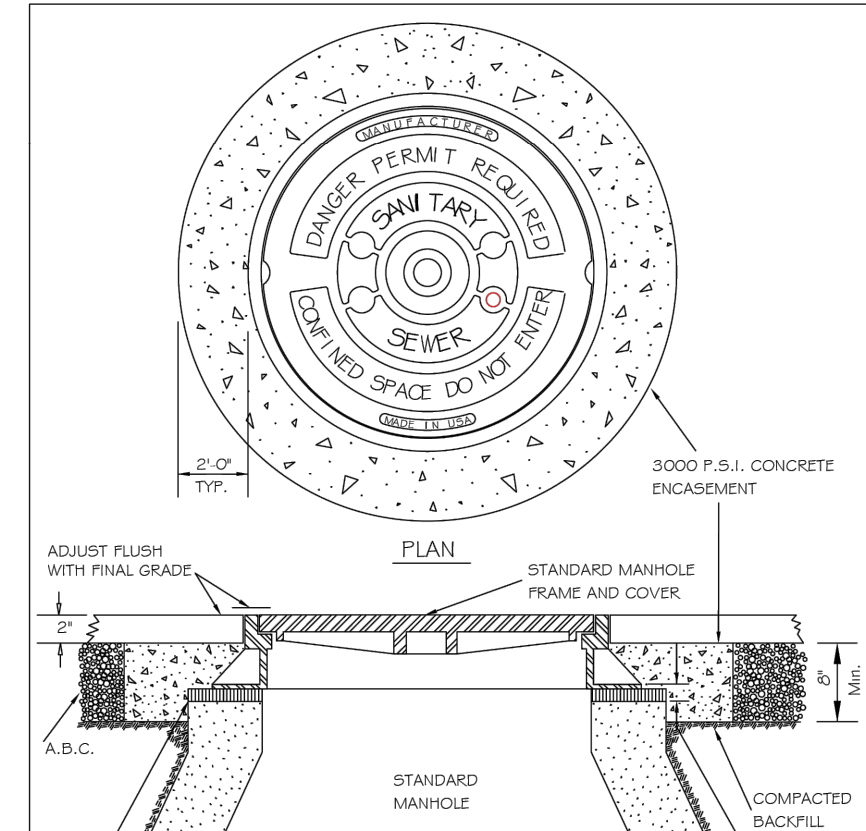
NOTES:
 1. ALL MANHOLE FRAMES SHALL BE CAST IN PLACE GALVANIZED PIPE FLANGE WITH VENTED STACK.
 2. VENT SHALL BE FACTORY WELDED FABRICATED AND 'HOT DIPPED' GALVANIZED.
 3. PIPE, 'HANDLED YEAR FLOOD' ELEVATION.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD MANHOLE COVER					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-25		3/11/07			
		3/30/00			
		D.H.L.			
		6-18-08			



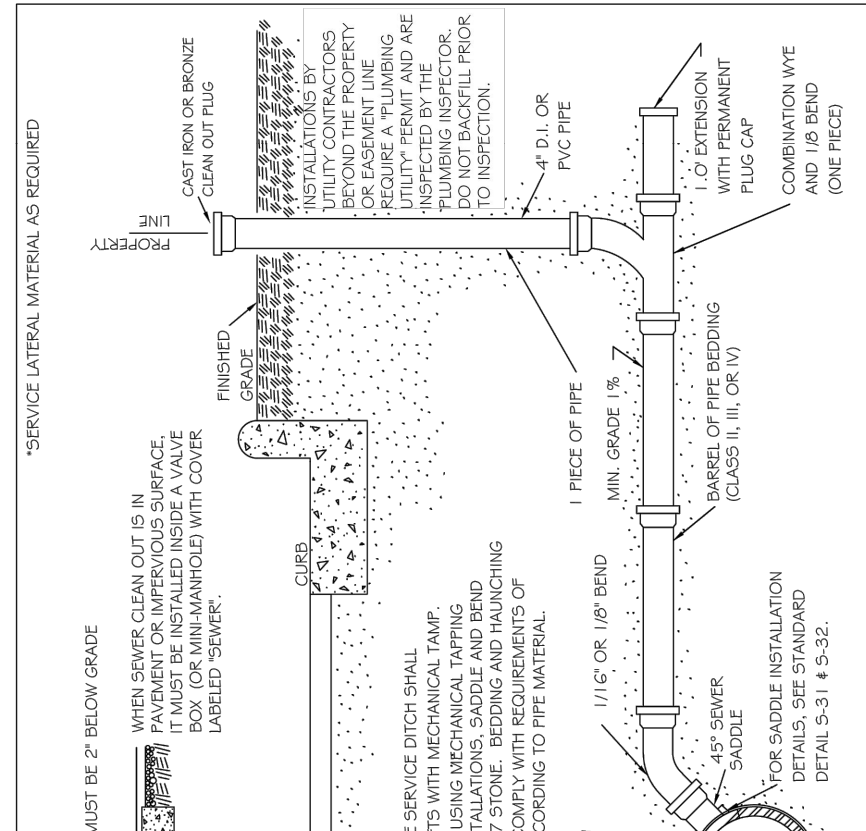
NOTES:
 1. VENT SHALL BE FACTORY WELDED FABRICATED AND 'HOT DIPPED' GALVANIZED.
 2. PIPE, 'HANDLED YEAR FLOOD' ELEVATION.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD SUP RESISTANT MANHOLE STEP DETAIL					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-26		3/11/07			
		3/30/00			
		D.H.L.			
		6-18-08			



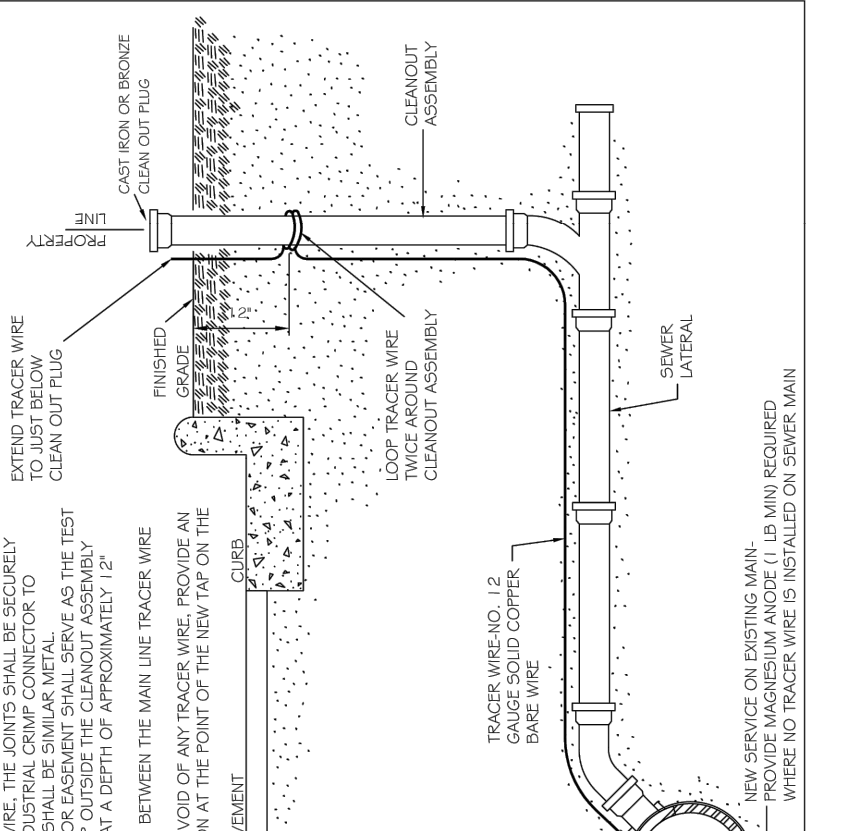
NOTES:
 1. VENT SHALL BE FACTORY WELDED FABRICATED AND 'HOT DIPPED' GALVANIZED.
 2. PIPE, 'HANDLED YEAR FLOOD' ELEVATION.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD MANHOLE FRAME AND COVER					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-29		12/21/07			
		8/21/00			
		3-30-00			
		D.H.L.			
		1-19-07			



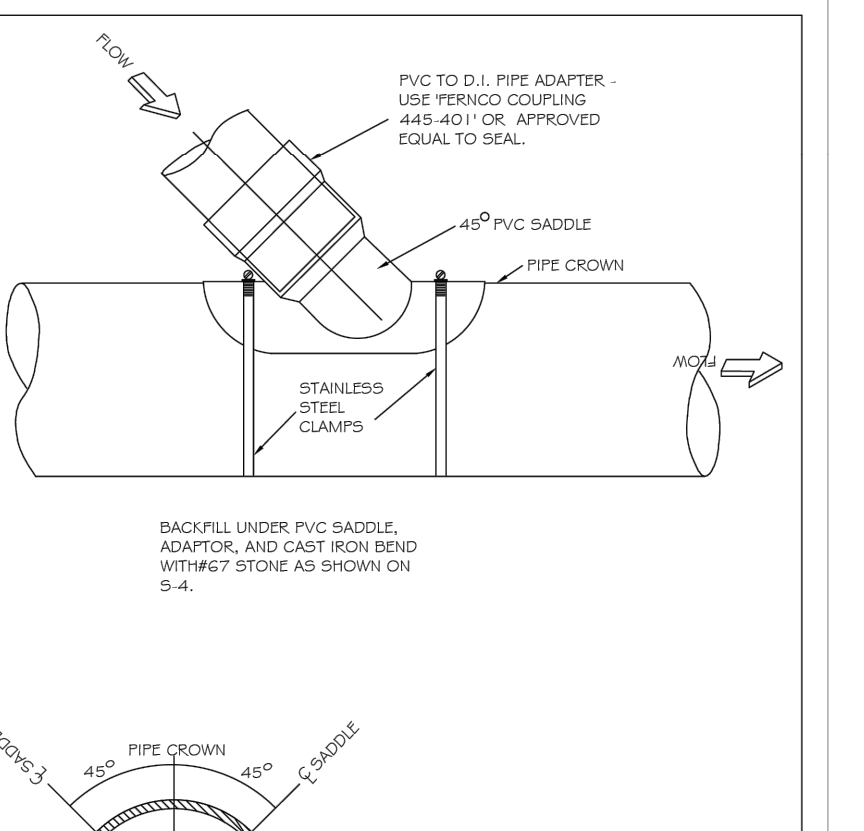
NOTES:
 1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8 FT, THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRE SHALL BE Laid PLAT AND SECURELY AFFIXED TO THE PIPE AT 10 FOOT INTERVALS FOR GRAVITY MAIN AND OR LATERAL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

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
TYPICAL SANITARY SEWER LATERAL CONNECTION					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-30		6-26-07			
		3-30-00			
		D.H.L.			
		6-16-06			



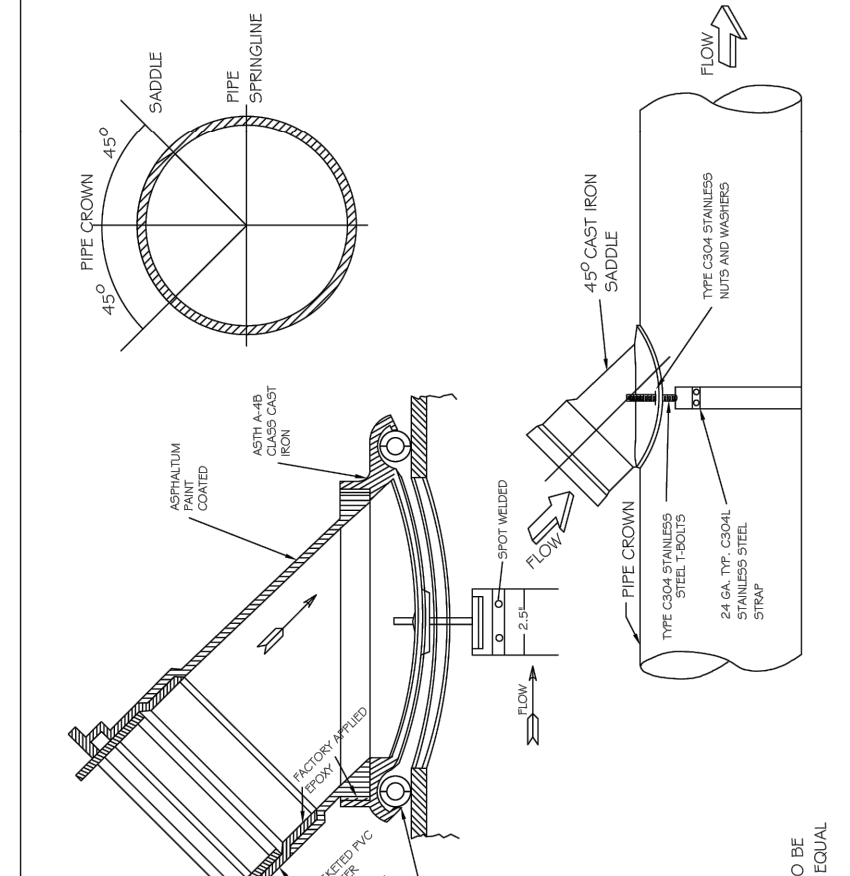
NOTES:
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CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
TYPICAL SANITARY SEWER LATERAL TRACER WIRE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-30A		6-26-07			
		3-30-00			
		D.H.L.			
		6-16-06			



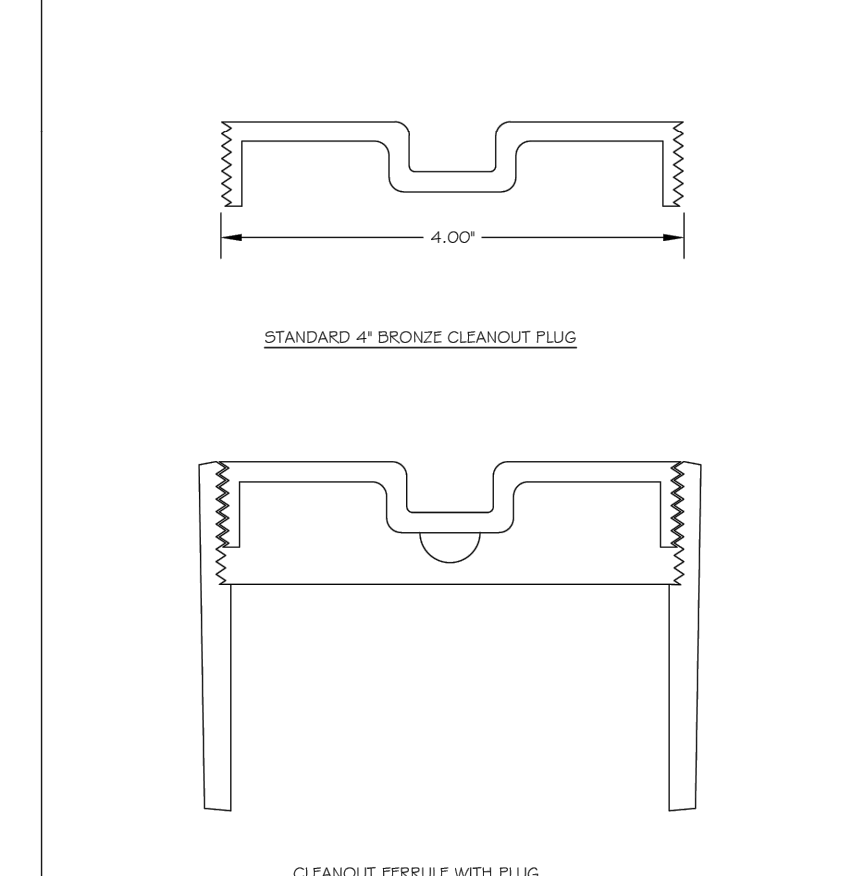
NOTES:
 1. VENT SHALL BE FACTORY WELDED FABRICATED AND 'HOT DIPPED' GALVANIZED.
 2. PIPE, 'HANDLED YEAR FLOOD' ELEVATION.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
LATERAL SADDLE INSTALLATION DETAIL FOR PVC PIPE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-31		3/11/07			
		3-30-00			
		D.H.L.			
		6-16-06			



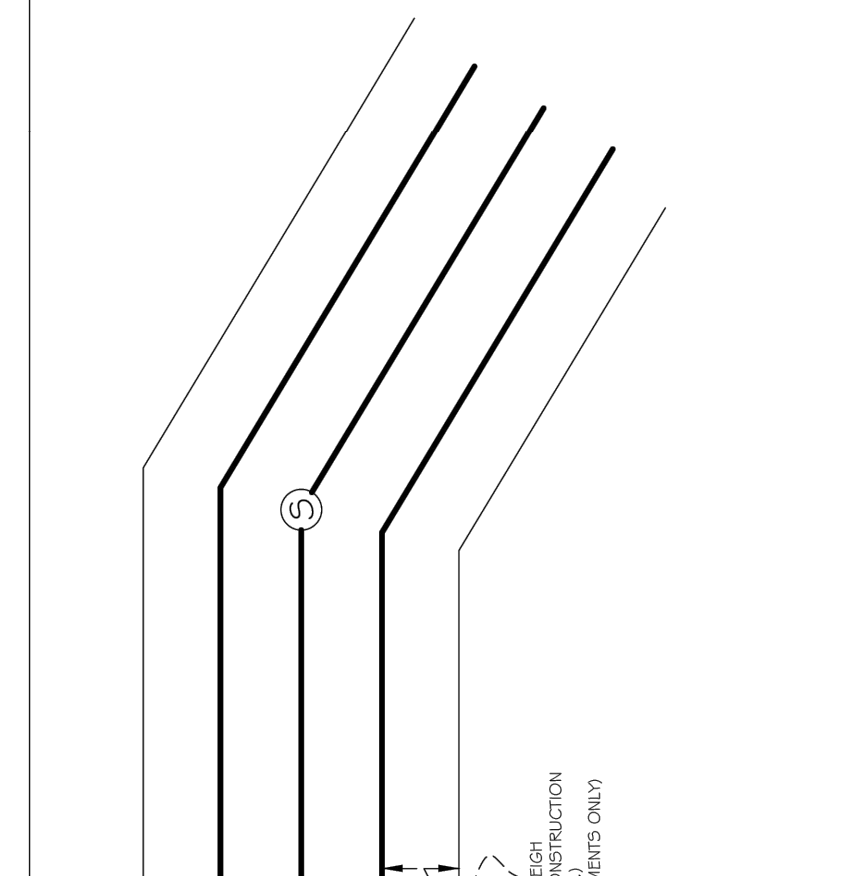
NOTES:
 1. VENT SHALL BE FACTORY WELDED FABRICATED AND 'HOT DIPPED' GALVANIZED.
 2. PIPE, 'HANDLED YEAR FLOOD' ELEVATION.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
LATERAL SADDLE INSTALLATION DETAIL FOR VCP AND DUCTILE IRON PIPE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-32		3-11-07			
		3-30-00			
		D.H.L.			
		3-30-00			



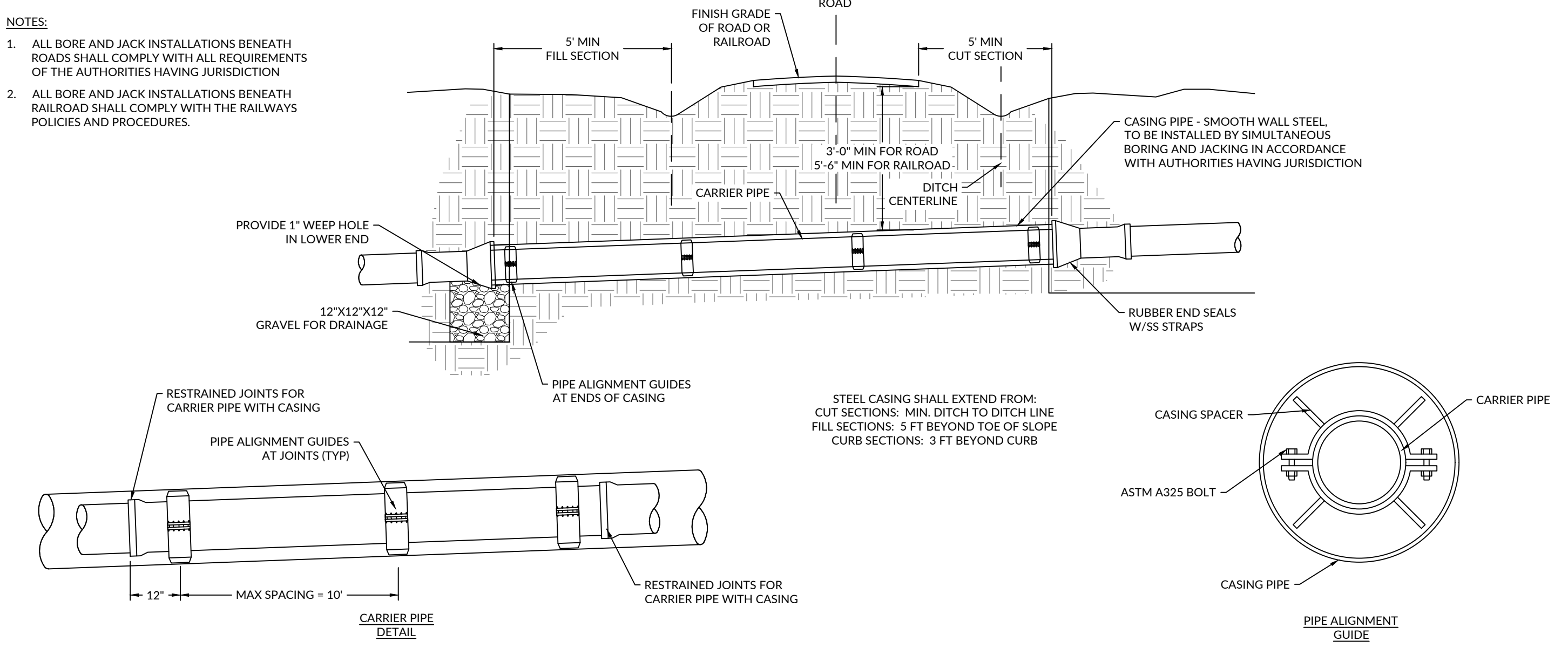
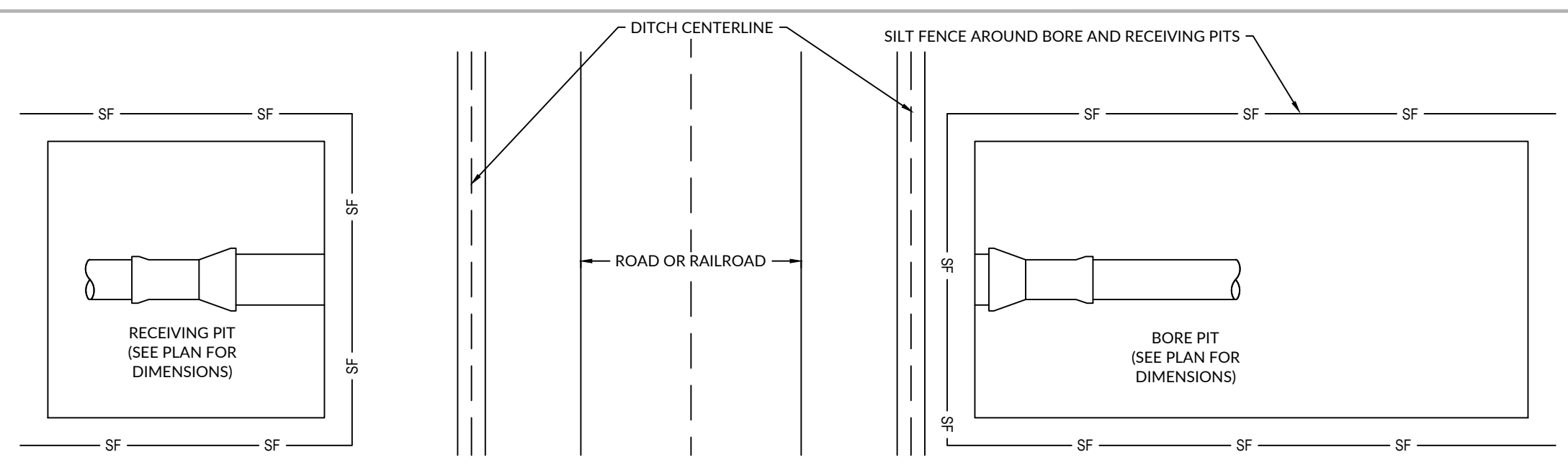
NOTES:
 1. VENT SHALL BE FACTORY WELDED FABRICATED AND 'HOT DIPPED' GALVANIZED.
 2. PIPE, 'HANDLED YEAR FLOOD' ELEVATION.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
4" CLEANOUT PLUG					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-34		D.W.C.			
		3-27-98			
		3-30-00			



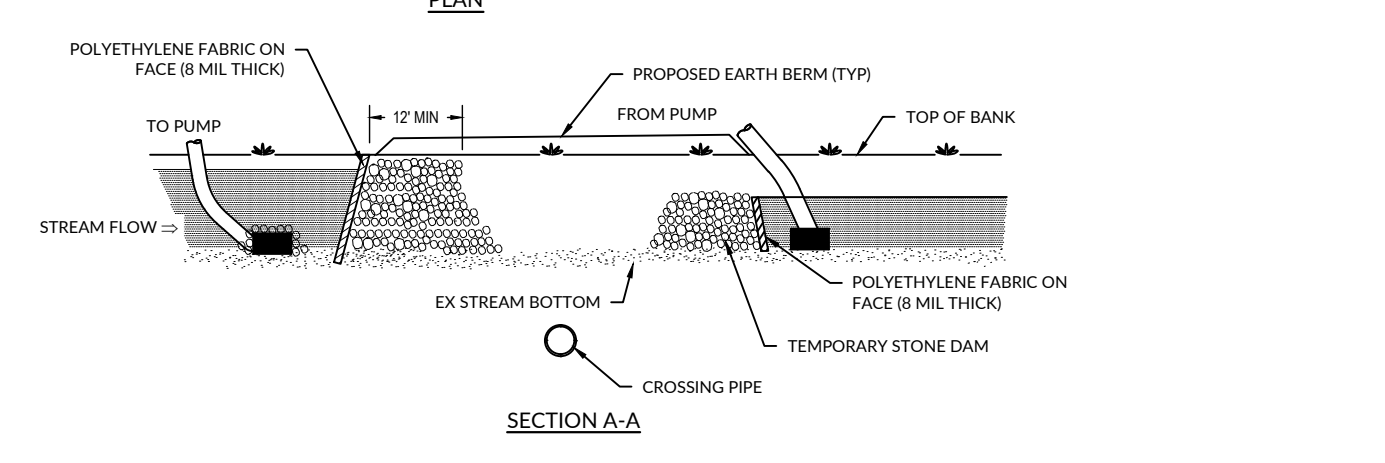
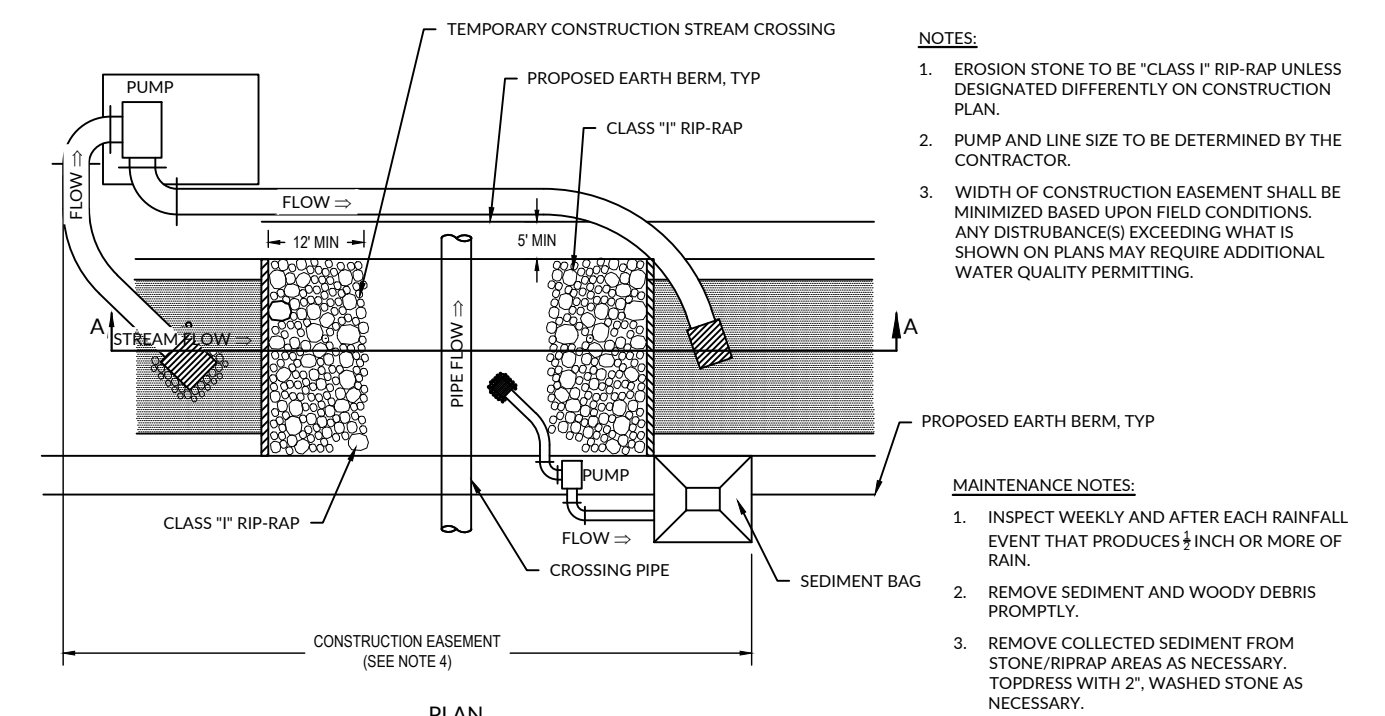
NOTES:
 1. VENT SHALL BE FACTORY WELDED FABRICATED AND 'HOT DIPPED' GALVANIZED.
 2. PIPE, 'HANDLED YEAR FLOOD' ELEVATION.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
8" x 10" SANITARY SEWER EASEMENT WIDTHS					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-43		A.S.H.			
		6-26-07			
		6-16-06			



BORE AND JACK
Scale:NTS

UTILITY TRENCHES
C5051



- NOTES:**
- EROSION STONE TO BE "CLASS 1" RIP-RAP UNLESS DESIGNATED DIFFERENTLY ON CONSTRUCTION PLAN.
 - PUMP AND LINE SIZE TO BE DETERMINED BY THE CONTRACTOR.
 - WIDTH OF CONSTRUCTION EASEMENT SHALL BE MINIMIZED BASED UPON FIELD CONDITIONS. ANY DISTURBANCES EXCEEDING WHAT IS SHOWN ON PLANS MAY REQUIRE ADDITIONAL WATER QUALITY PERMITTING.
- MAINTENANCE NOTES:**
- INSPECT WEEKLY AND AFTER EACH RAINFALL EVENT THAT PRODUCES 1/4" OR MORE OF RAIN.
 - REMOVE SEDIMENT AND WOODY DEBRIS PROMPTLY.
 - REMOVE COLLECTED SEDIMENT FROM STONE RIP-RAP AREAS AS NECESSARY. TOPPRESS WITH 2" WASHED STONE AS NECESSARY.
- CONSTRUCTION SEQUENCE:**
- INSTALL PUMPS UPSTREAM OF TEMPORARY STREAM CROSSING AND PUMP TO AREA DOWNSTREAM OF CONSTRUCTION AREA. BEGIN PUMPING AND CONTINUE PUMPING WHILE WORKING WITHIN THE STREAM.
 - INSTALL UPSTREAM DAM AND DOWNSTREAM DAM WITH POLYETHYLENE FACING.
 - INSTALL EARTH BERMS ALONG TOP OF BANK ON EACH SIDE OF STREAM IN THE CONSTRUCTION AREA.
 - INSTALL SEDIMENT FILTER BAG AT TOP OF BANK. DEWATER CONSTRUCTION AREA BETWEEN STONE DAM USING THE FILTER BAG.
 - INSTALL THE NEW PIPELINE.
 - UPON CONSTRUCTION COMPLETION, REMOVE TEMPORARY DAMS, POLYETHYLENE, AND TEMPORARY CMP. DEPRESS TEMPORARY DAM BOTTOMS INTO STREAM BED UNTIL TOP OF RIP RAP IS LEVEL WITH STREAM BOTTOM.
 - REMOVE TEMPORARY EARTH BERM AND SEDIMENT BAGS AND STABILIZE AREAS AS INDICATED ON DRAWINGS.

TEMPORARY STREAM CROSSING BYPASS
Scale:NTS

RESIDENTIAL
C5070

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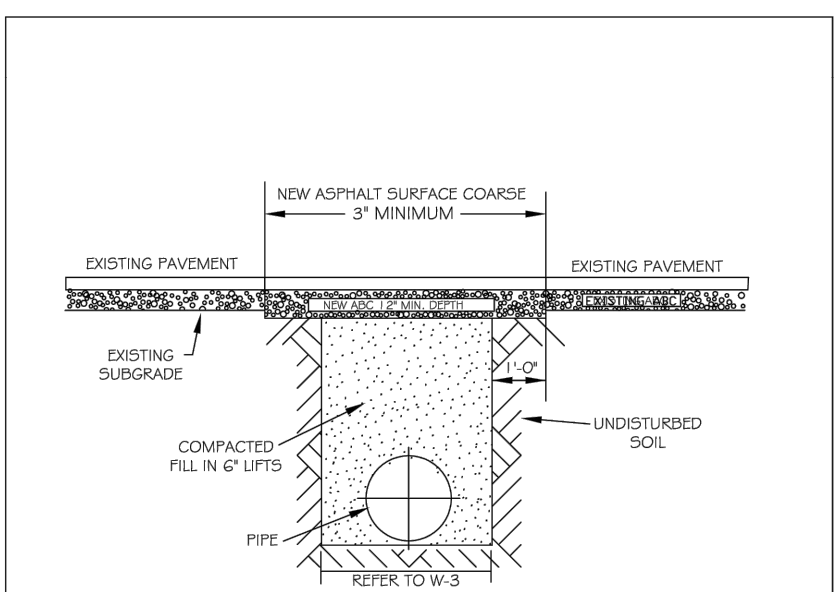


INITIAL PLAN DATE: 11/01/2024
REVISIONS:
1 - 01/02/2025
REVISED PER REVIEW COMMENTS

WR JOB NUMBER 23-0045
DRN: WR DGN: WR CKD: WR

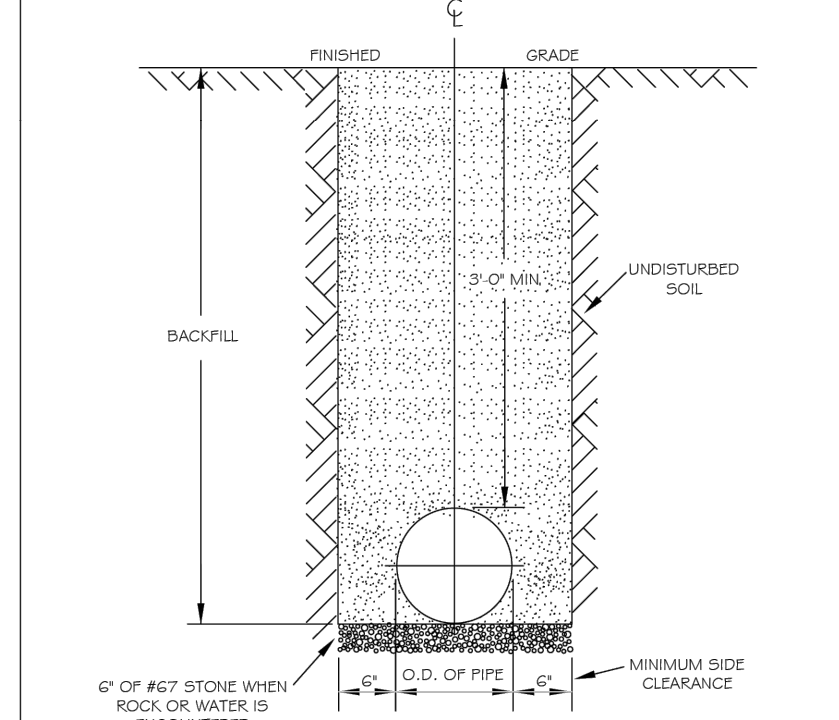
SEWER DETAILS

C10.03



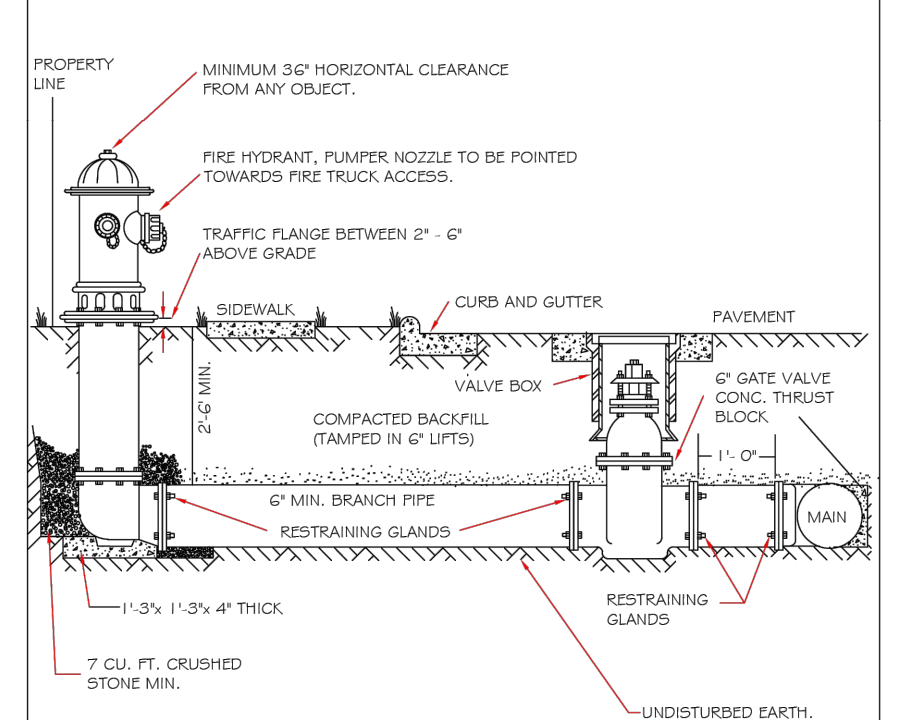
- NOTES:
1. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAW CUT MACHINE.
 2. THE TRUCK SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 98% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH ASTM D 1557 AS MODIFIED BY AASHTO.
 3. THE FINAL 1" OF FILL SHALL CONSIST OF ASC MATERIAL COMPACTED TO A DENSITY EQUAL TO THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY AASHTO.
 4. THE ENTIRE THICKNESS VERTICAL EDGE OF CUT SHALL BE BACKED.
 5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTATE, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
 6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.
 7. REFER TO CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING, W-3, FOR ADDITIONAL DETAILS.
 8. NO HAND PATCHING ALLOWED.
 9. PAVEMENT CUTS WITHIN ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
STANDARD ASPHALT PAVEMENT PATCH DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-2	RR1	3-31-00	A.B.B.
	D.W.C.	11-29-99	J.P.S.



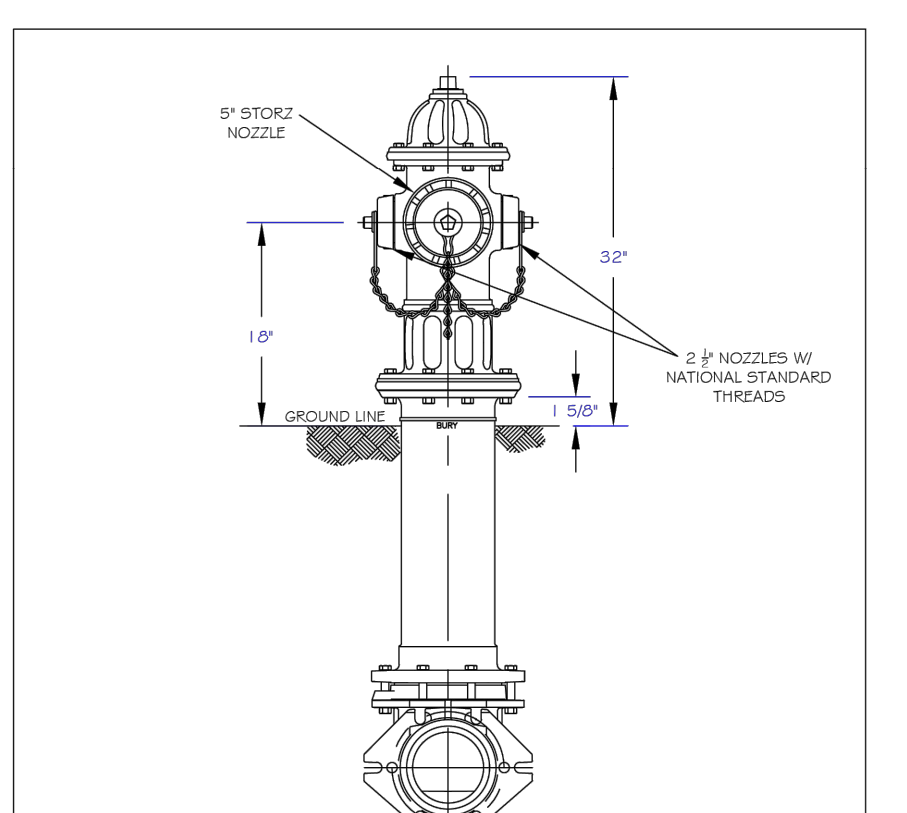
- NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 2. NO ROCKS OR BouldERS 4" OR LARGER TO BE USED IN BACKFILL.
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
 5. ACHIEVE 95% COMPACTION IN BACKFILL.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
TRENCH BOTTOM EMBANKMENT BACKFILLING REQUIREMENTS FOR DUCTILE IRON			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-3	RR1	3-31-00	J.P.S.



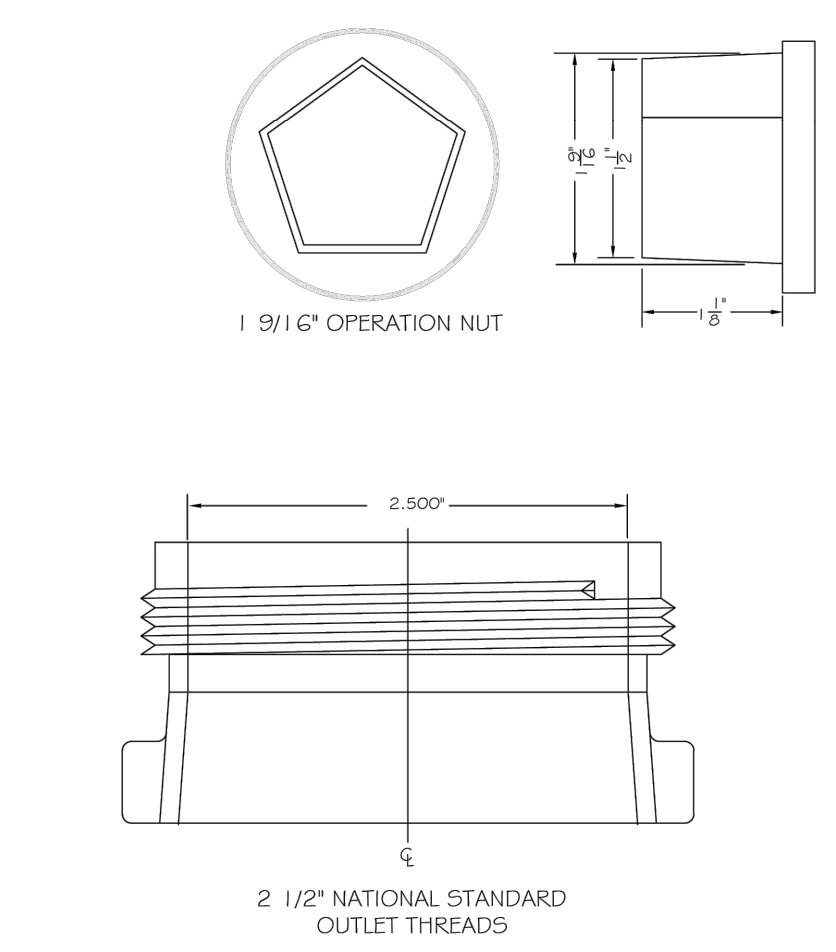
- NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MILLER, AMERICAN DAWG, KENNEDY, M&L, WATERBURY, SLOW LEAK, KRAMER WORKS, OR US PIPE.
 2. BRANCH PIPE SHALL BE DUCTILE IRON ANNA C1150-9.
 3. 4" GATE VALVE SHALL BE ANNA C1150-9 OR US PIPE.
 4. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIP GALVANIZED.
 5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
 6. HYDRANT SHALL NOT BE COVERED MORE THAN 2" ABOVE GRADE.
 7. HYDRANT SHALL BE INSTALLED WITH RESTRAINING GLANDS WITH A RESTRAINING CASE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND FUSED IN CONCRETE.
 8. FIRE HYDRANTS TO BE LOCKED IN OPEN OR 2 FOOT SEGMENT ADJACENT TO ROW.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
STANDARD FIRE HYDRANT INSTALLATION DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-4	RR1	3-31-00	D.H.L.

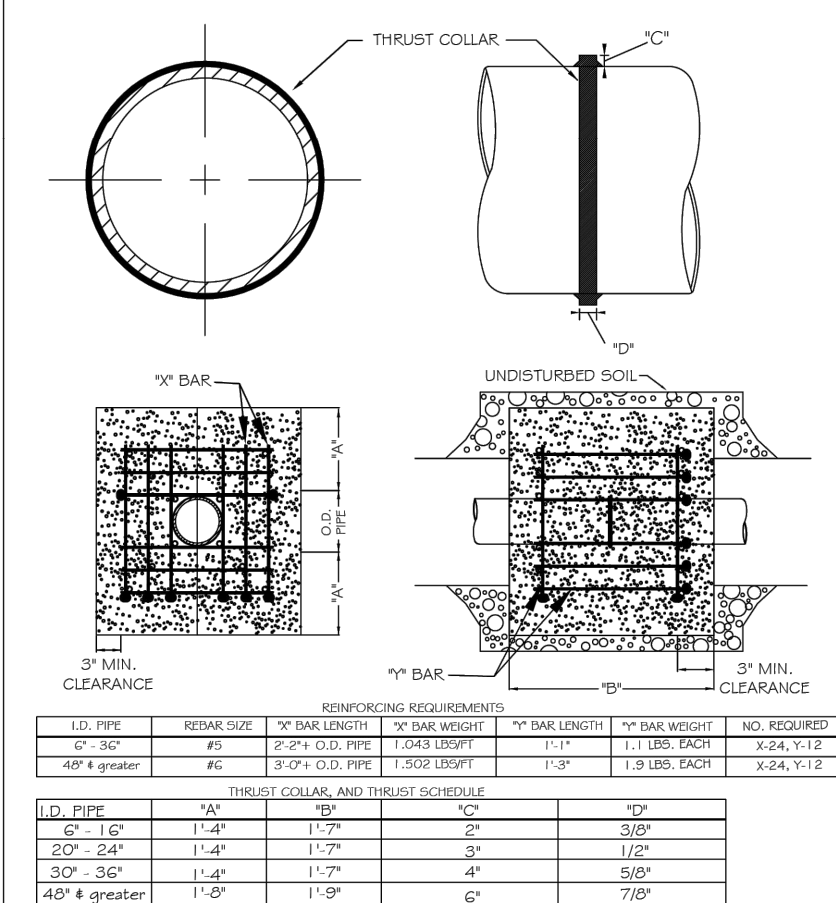


- NOTES:
1. RALEIGH PUBLIC HYDRANTS SHALL BE PAINTED SOLID RED.
 2. KNOCKOUTS & ROSEVILLE PUBLIC HYDRANTS SHALL BE PAINTED RED W/SLIVER OPERATING NUTS.
 3. ZEPHYRUS PUBLIC HYDRANTS SHALL BE PAINTED RED W/SLIVER BONNETS AND OPERATING NUTS.
 4. WAKE FOREST AND GARDNER, AND WINDHILL PUBLIC AND PRIVATE HYDRANTS TO BE PAINTED SAFETY YELLOW W/SLIVER CAPS AND OPERATING NUTS.
 5. OPERATING NUTS ON HYDRANTS CONNECTED TO PUBLIC MAINS LARGER THAN 12" SHALL BE PAINTED BLACK.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
STANDARD FIRE HYDRANT WITH 5\"/>			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-5	RR1	3-31-00	D.H.L.

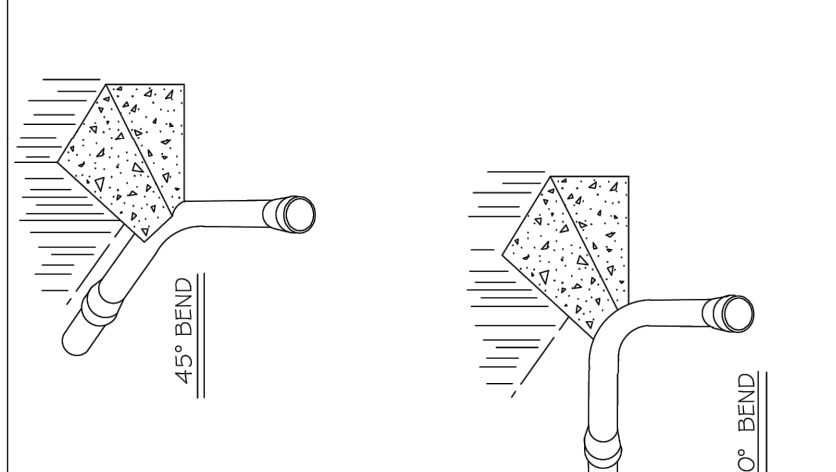


CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
HYDRANT OPERATING NUT AND 2 1/2\"/>			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-6	RR1	3-31-00	D.H.L.



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

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
THRUST BLOCKING DATA FOR WATER MAINS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-7	RR1	3-31-00	J.P.S.



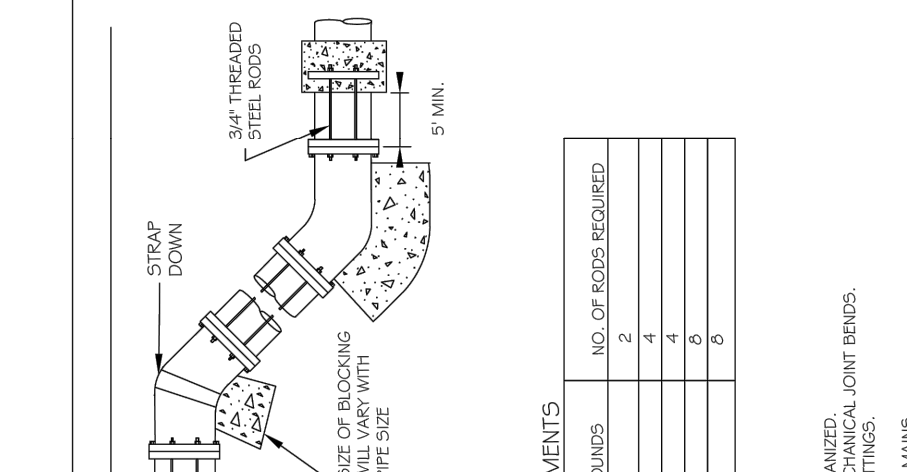
- NOTES:
1. CONCRETE SHALL BE 3000 PSI.
 2. REINFORCING BARS SHALL NOT CONTACT DUCTS OR ENDS OF TRENCHES.
 3. TRENCHES SHALL CONFORM TO STANDARD DETAIL W-3.
 4. SEE STANDARD THRUST BLOCK TABLES W-10 THRU W-12 FOR ADDITIONAL DETAILS.
 5. ALL BORDERS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
STANDARD THRUST BLOCKING VIEWS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-9	D.W.C.	3-1-07	RR1
	D.W.C.	11-29-99	J.P.S.

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS BASED ON TEST PRESSURE OF 200 P.S.I.									
ALL AREAS GIVEN IN SQUARE FEET									
SIZE AND NUMBER OF RODS	NO. OF RODS	NO. OF RODS	NO. OF RODS	NO. OF RODS	NO. OF RODS	NO. OF RODS	NO. OF RODS	NO. OF RODS	NO. OF RODS
4"	1	1	1	1	1	1	1	1	1
6"	1	1	1	1	1	1	1	1	1
8"	1	1	1	1	1	1	1	1	1
10"	1	1	1	1	1	1	1	1	1
12"	1	1	1	1	1	1	1	1	1

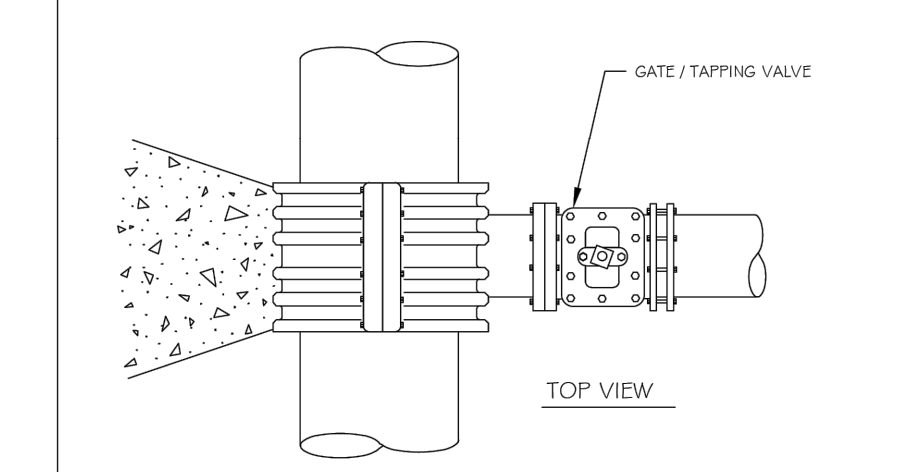
REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED AT AN ANGULAR PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.	REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED AT AN ANGULAR PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.	REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED AT AN ANGULAR PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.
11 1/4"	1,106	1,106
22 1/2"	2,207	2,207
45"	4,325	4,325
90"	7,992	7,992
PLUG	5,655	5,655

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
THRUST BLOCKING DESIGN QUANTITY TABLE			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-10	D.W.C.	3-23-99	RR1



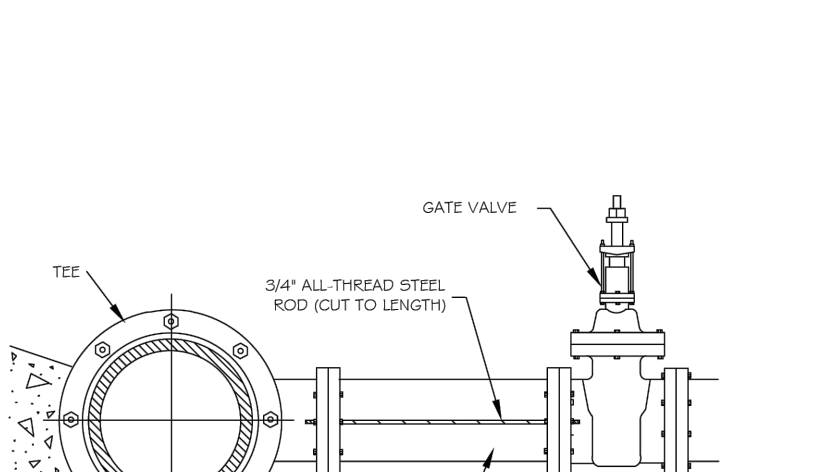
- GENERAL NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
 2. SEE STANDARD REACTION BLOCK TABLES, W-10 AND W-11 FOR AREA OF CONCRETE REQUIRED.
 3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
 4. USE 3/4" HOT DIP GALVANIZED STEEL RODS.
 5. 3" MINIMUM COVER MUST BE MAINTAINED ON ALL WATER MAINS.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
STANDARD VERTICAL BEND			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-12	RR1	3-31-00	D.H.L.



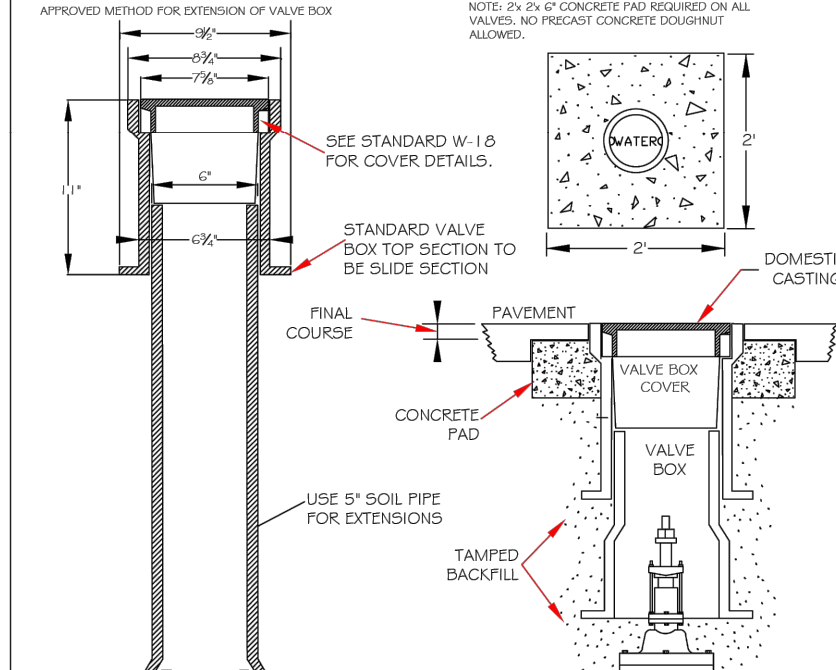
- NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
 2. SEE STANDARD REACTION BLOCK TABLES, W-10 AND W-11 FOR AREA OF CONCRETE REQUIRED.
 3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
 4. THIS RODDING REQUIREMENT DOES NOT APPLY TO FIRE HYDRANTS.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
4\"/>			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-14	D.W.C.	3-31-00	RR1



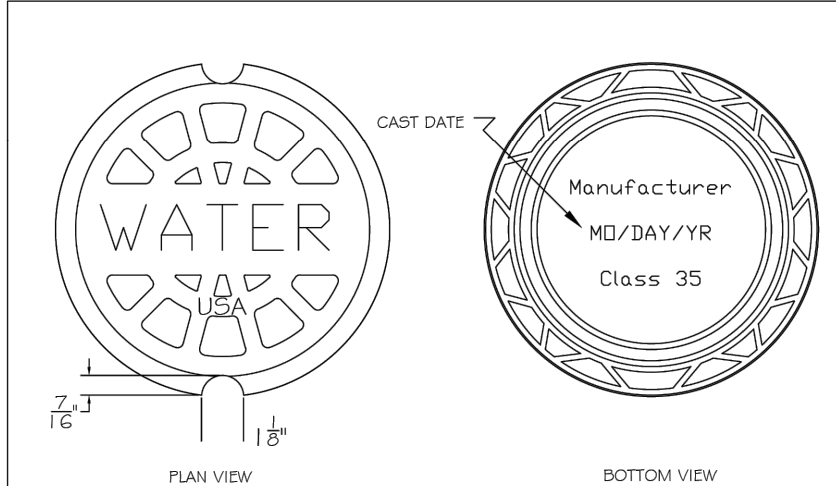
- NOTES:
1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIP GALVANIZED.
 2. SEE STANDARD THRUST BLOCK TABLES W-10 AND W-11 FOR CONCRETE.
 3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
 4. THIS RODDING REQUIREMENT DOES NOT APPLY TO FIRE HYDRANTS.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
VALVE RESTRAINT AT TEES AND CROSSINGS FOR LINES 48\"/>			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-15	RR1	3-31-00	D.H.L.



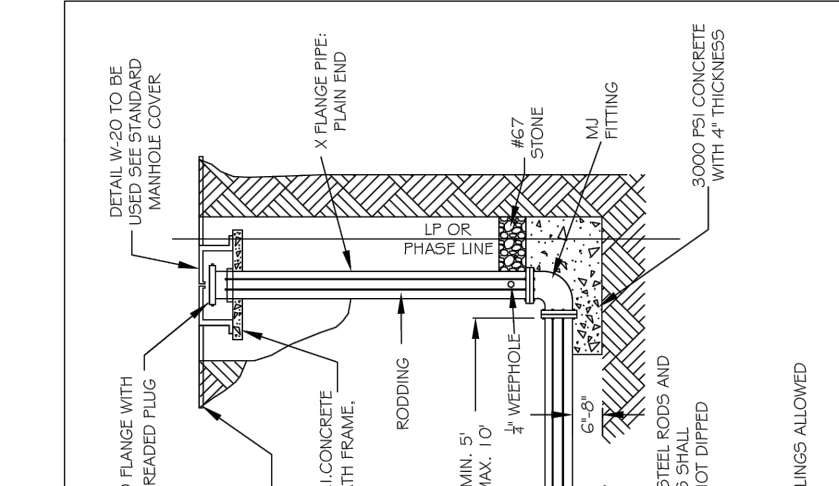
- NOTES:
1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIP GALVANIZED.
 2. SEE STANDARD THRUST BLOCK TABLES W-10 AND W-11 FOR CONCRETE.
 3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
 4. THIS RODDING REQUIREMENT DOES NOT APPLY TO FIRE HYDRANTS.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
VALVE BOX INSTALLATION AND EXTENSION DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-17	D.W.C.	3-31-00	RR1



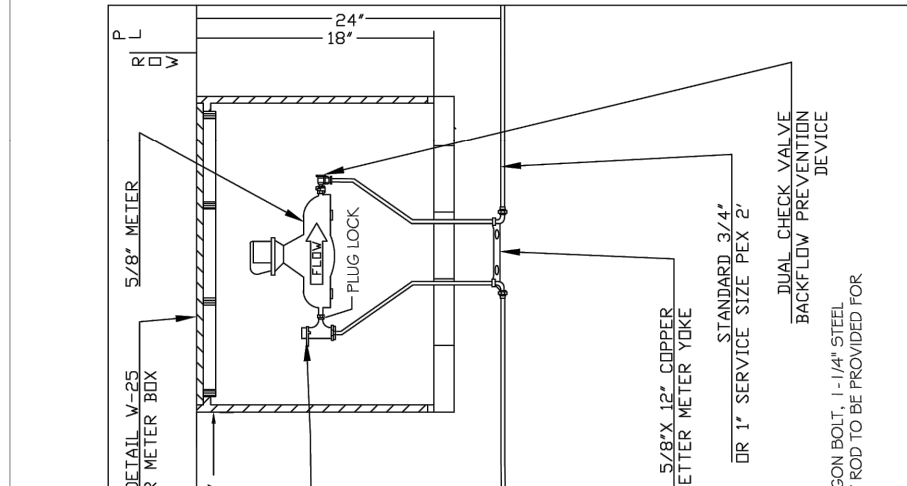
- NOTE 1 - WATER LETTERING MUST BE 1" RAISED (RECESSED FLUSH)
- NOTE 2 - VALVE COVER SHALL BE DOMESTICALLY CAST.
- NOTE 3 - COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
- NOTE 4 - COVER MUST BE CLASS 35 OR GREATER.
- NOTE 5 - COVER MUST MEET OR EXCEED ASPH/HT 10-20 LOAD REQUIREMENTS.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
5 1/4\"/>			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-8	RR1	3-31-00	D.H.L.



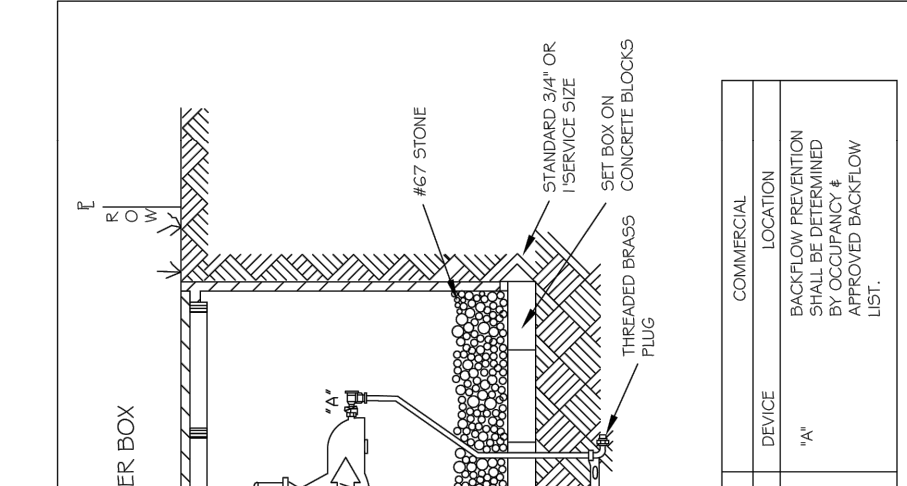
- NOTES:
1. 1" HOOD COUPLINGS ALLOWED.
 2. SEE STANDARD THRUST BLOCK TABLES W-10 AND W-11 FOR AREA OF CONCRETE REQUIRED.
 3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
 4. THIS RODDING REQUIREMENT DOES NOT APPLY TO FIRE HYDRANTS.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
TEMPORARY WATER MAIN BLOW OFF ASSEMBLY			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-21	D.W.C.	3-31-00	RR1



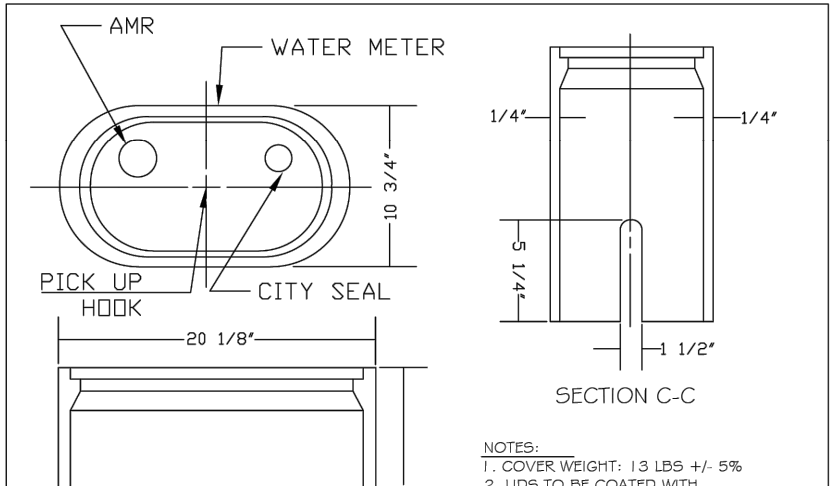
- NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
 2. SEE STANDARD REACTION BLOCK TABLES, W-10 AND W-11 FOR AREA OF CONCRETE REQUIRED.
 3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
 4. USE 3/4" HOT DIP GALVANIZED STEEL RODS.
 5. 3" MINIMUM COVER MUST BE MAINTAINED ON ALL WATER MAINS.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
STANDARD 3/4\"/>			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-23	D.H.L.	3-31-00	RR1



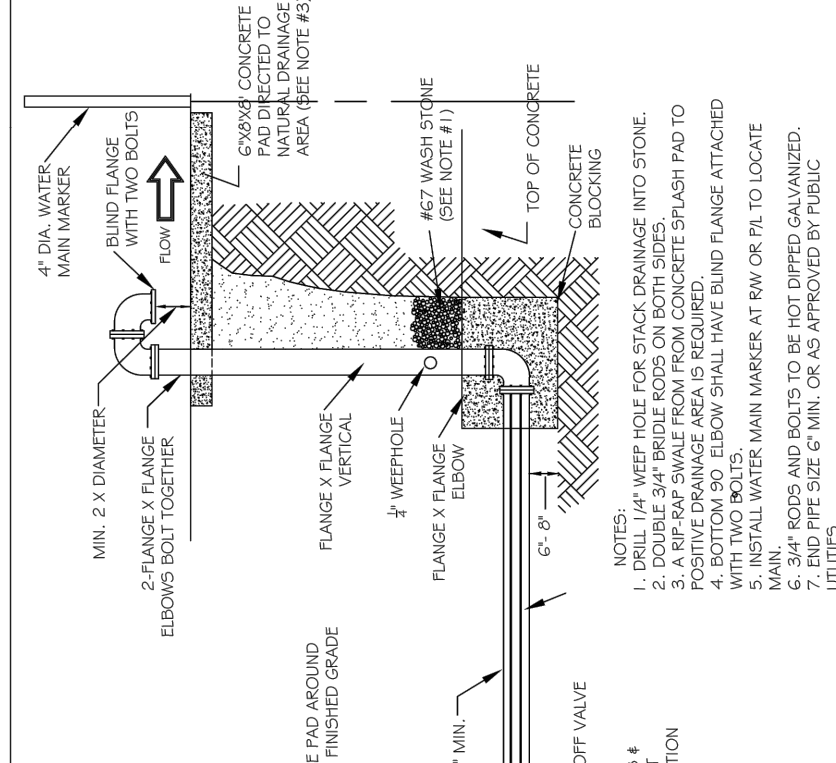
- NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
 2. SEE STANDARD REACTION BLOCK TABLES, W-10 AND W-11 FOR AREA OF CONCRETE REQUIRED.
 3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
 4. THIS RODDING REQUIREMENT DOES NOT APPLY TO FIRE HYDRANTS.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
ONE OR TWO FAMILY DWELLINGS BACKFLOW PREVENTION METER ASSEMBLY INSTALLATION			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-24	D.W.C.	3-31-00	D.H.L.



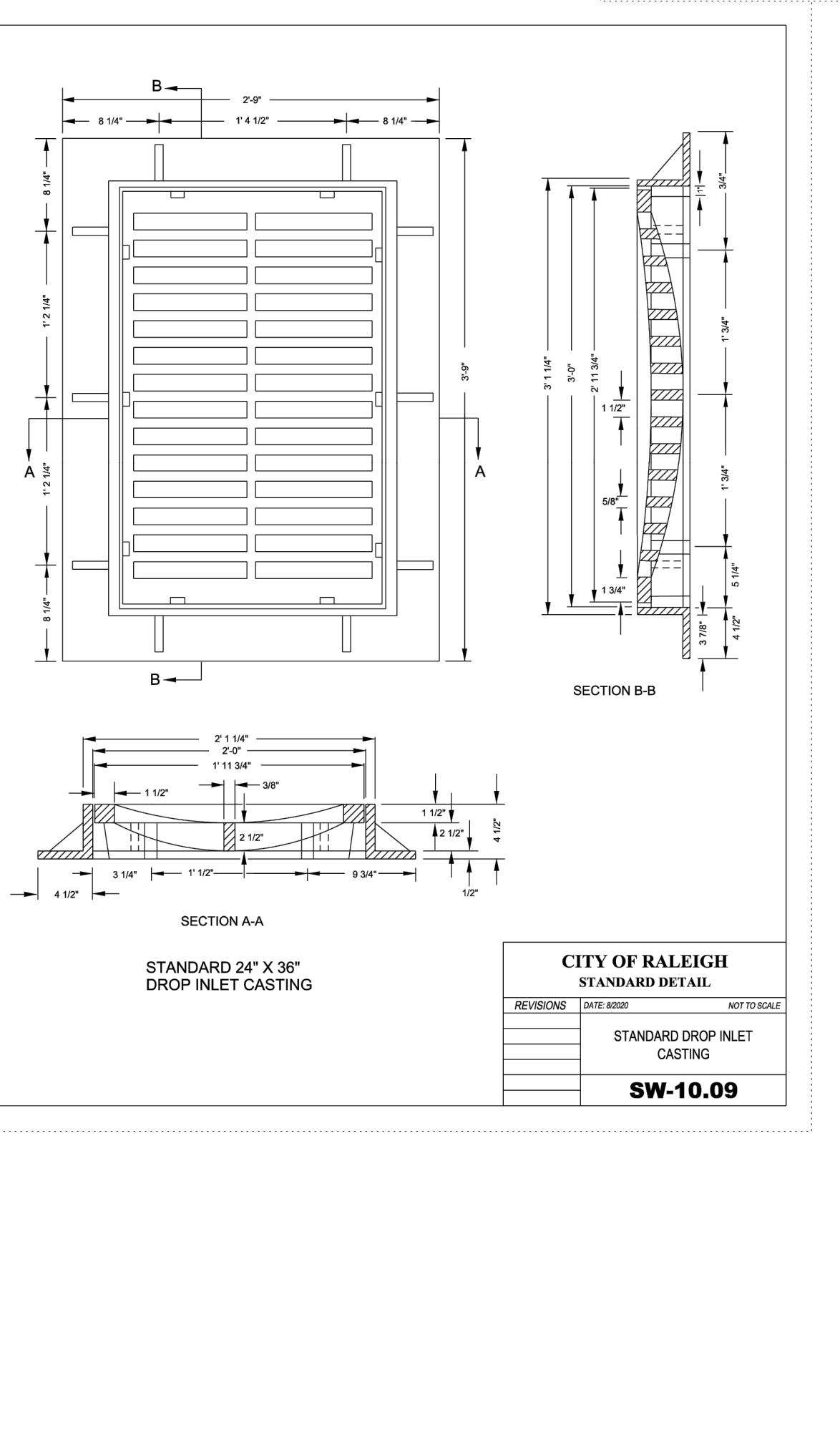
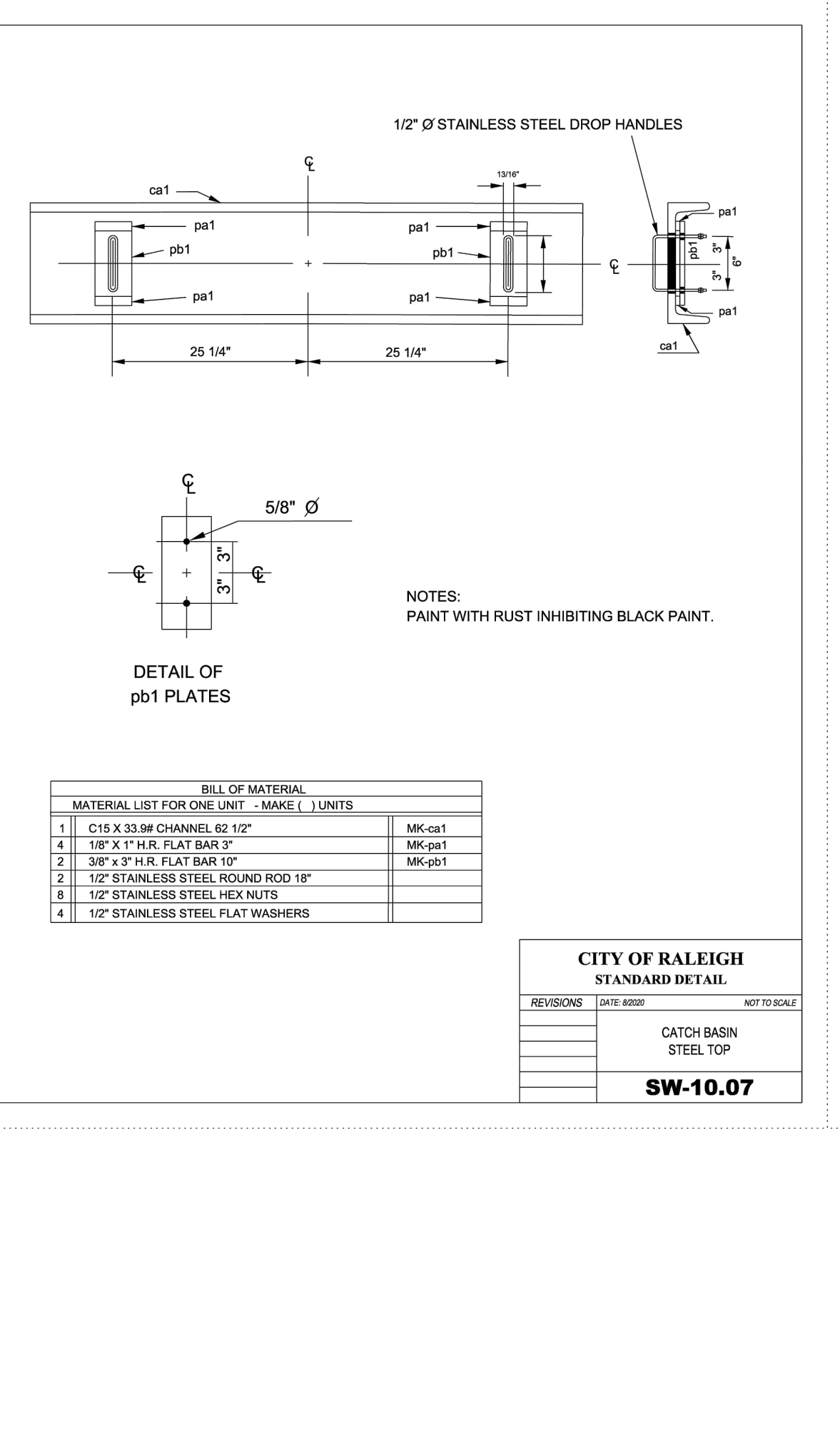
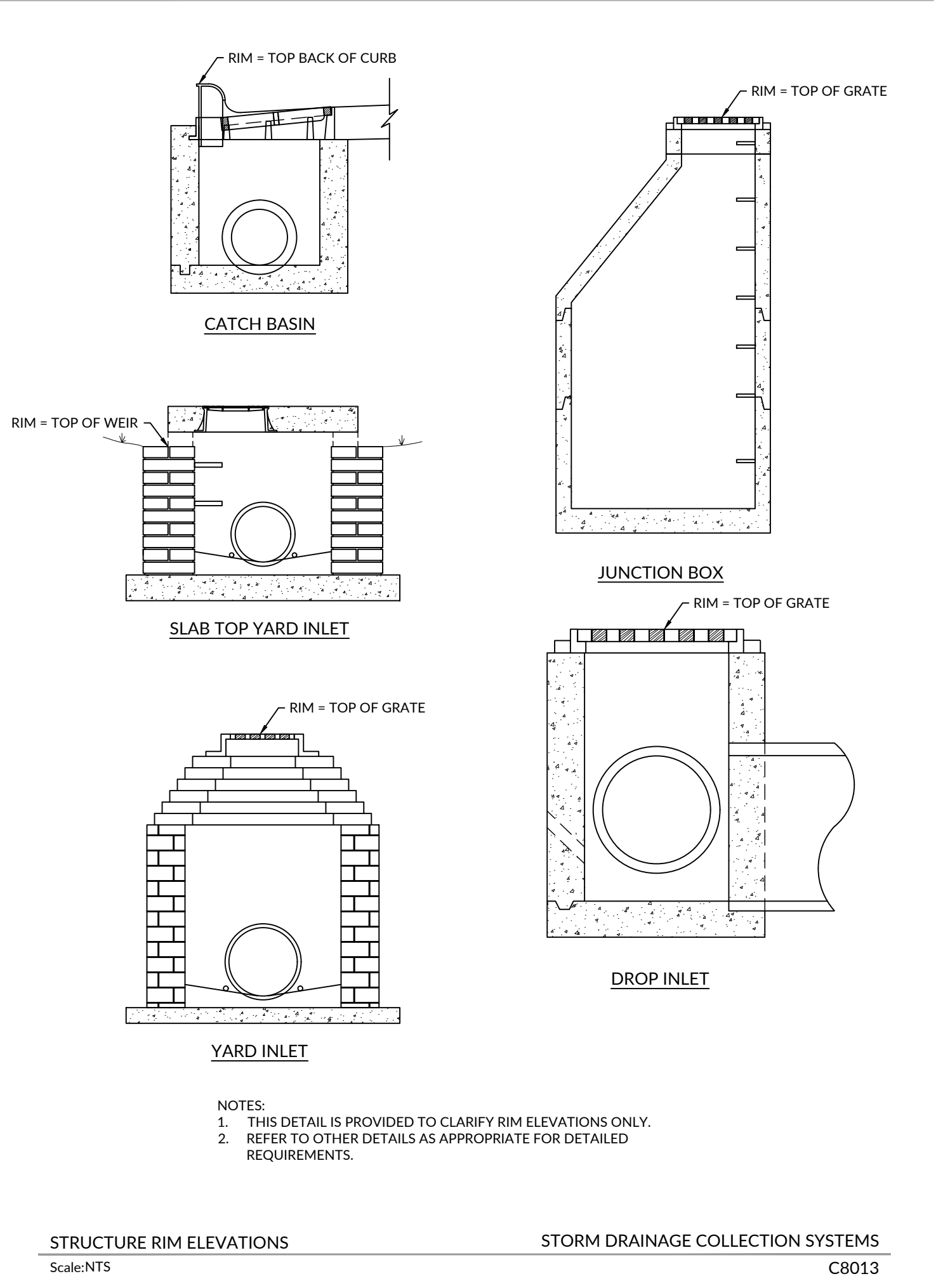
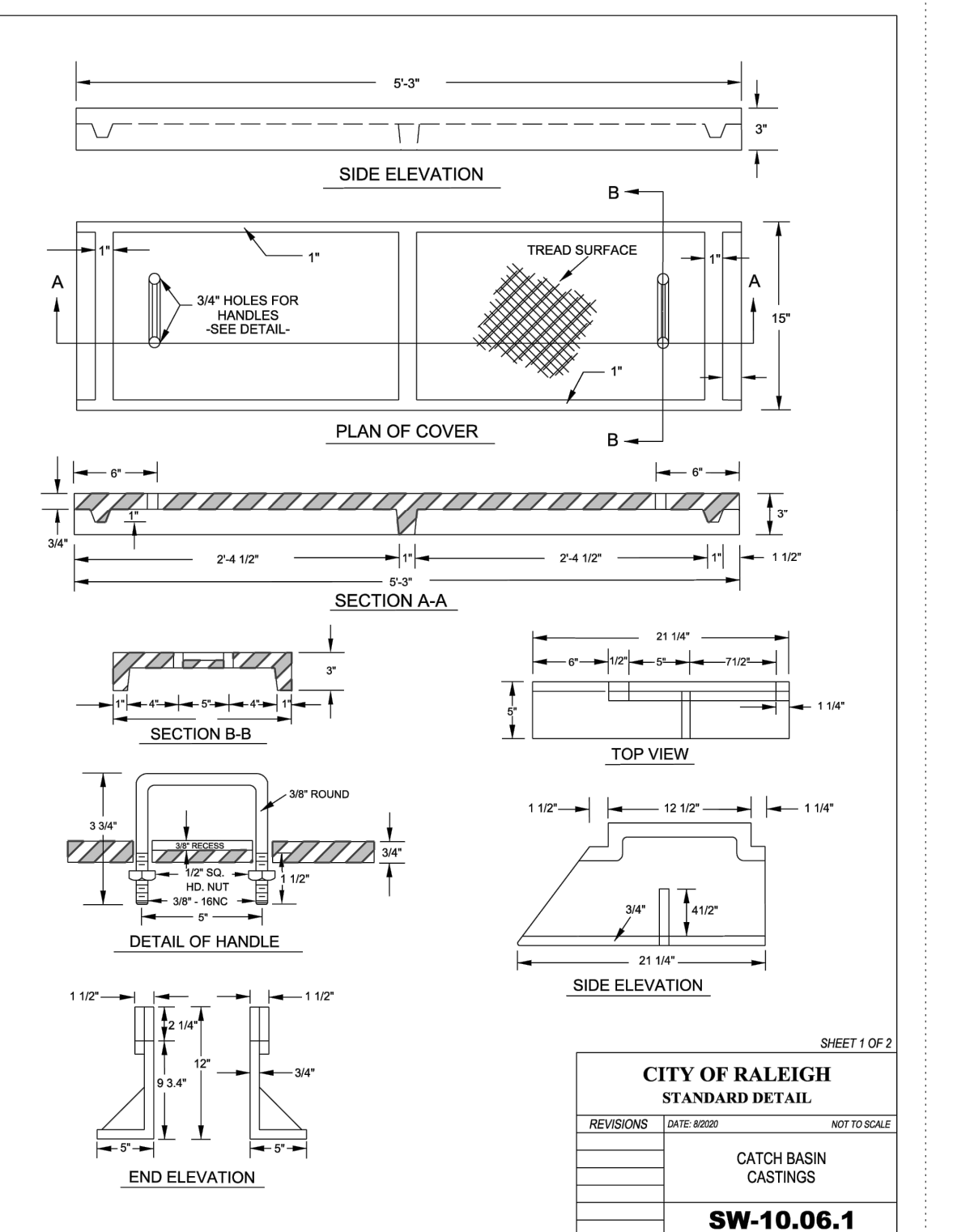
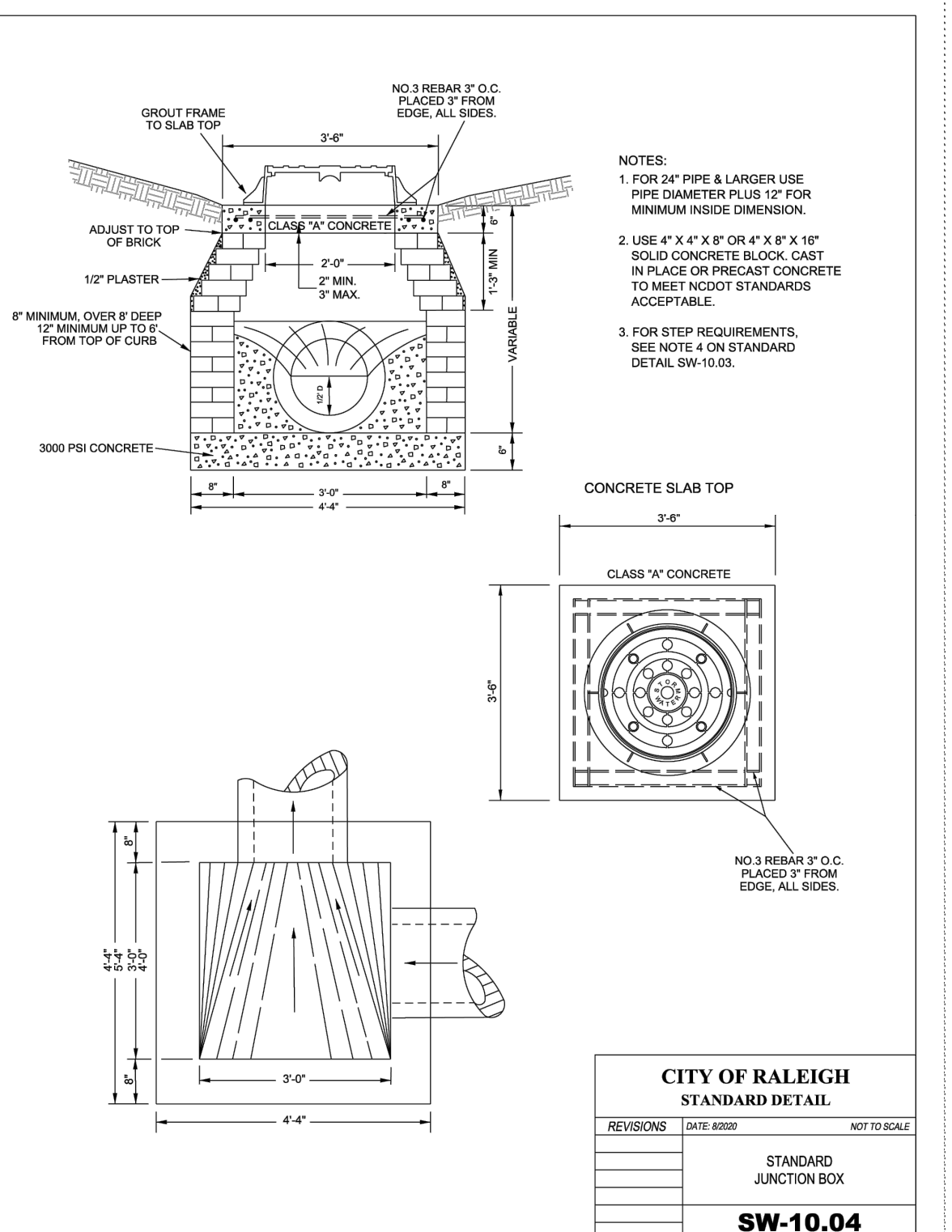
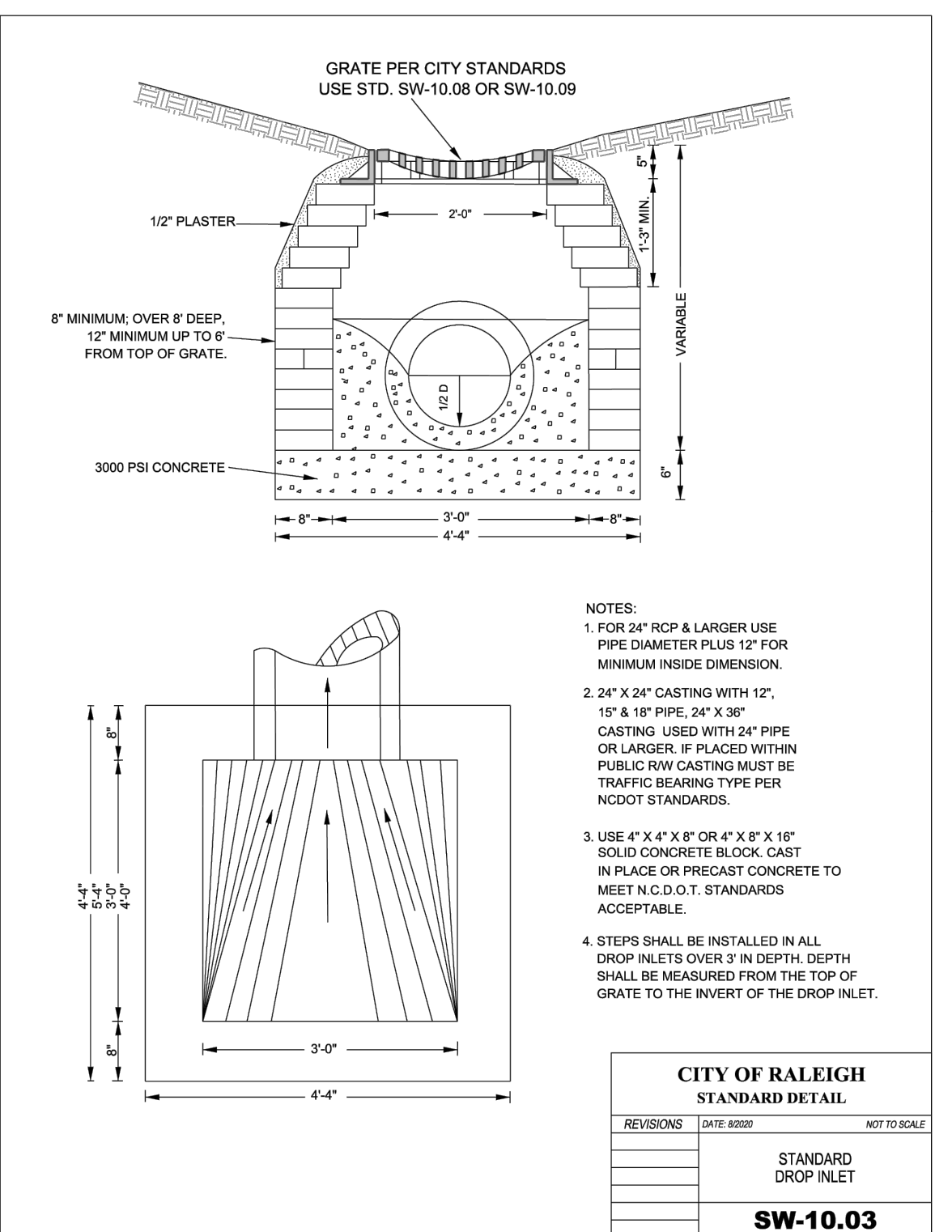
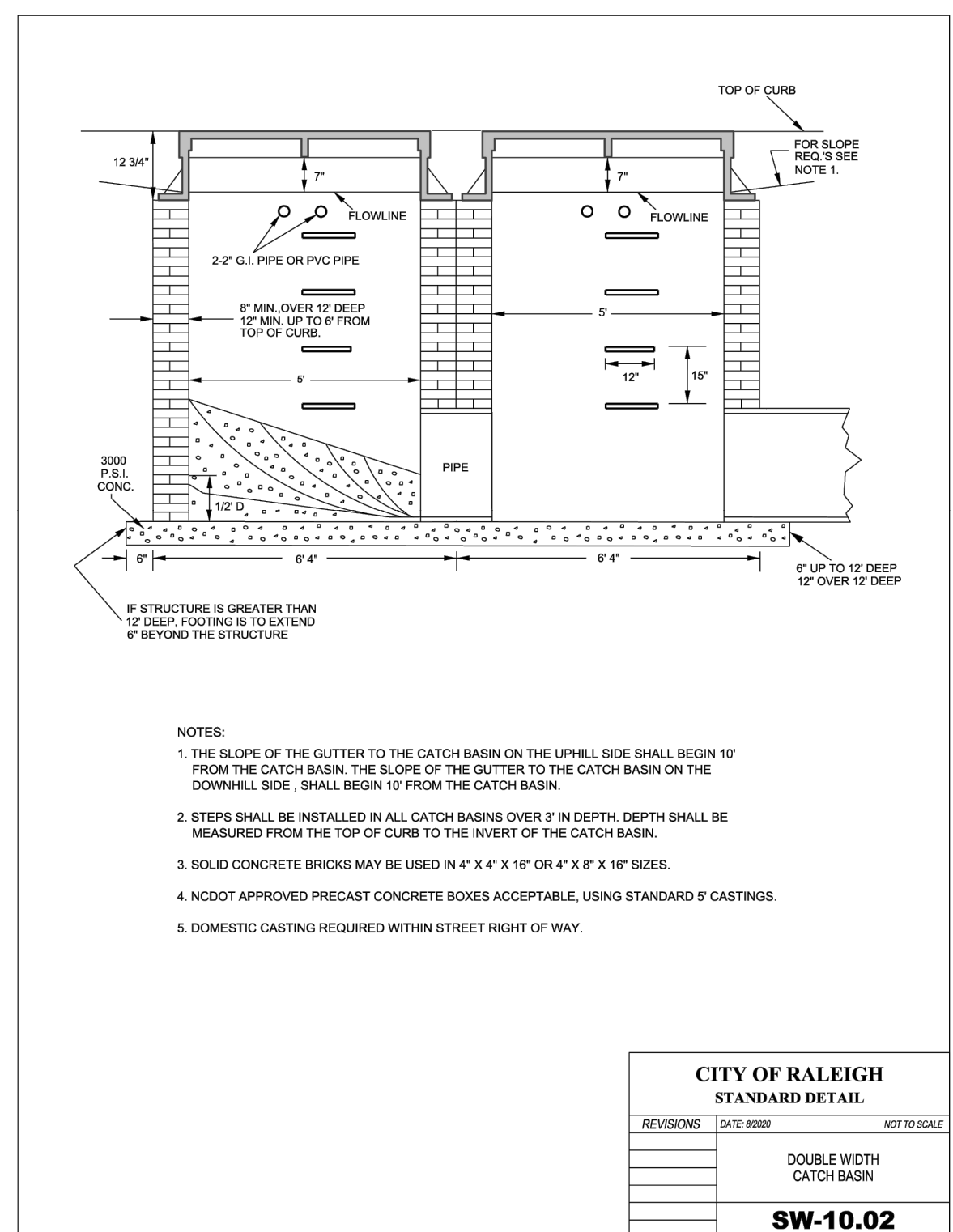
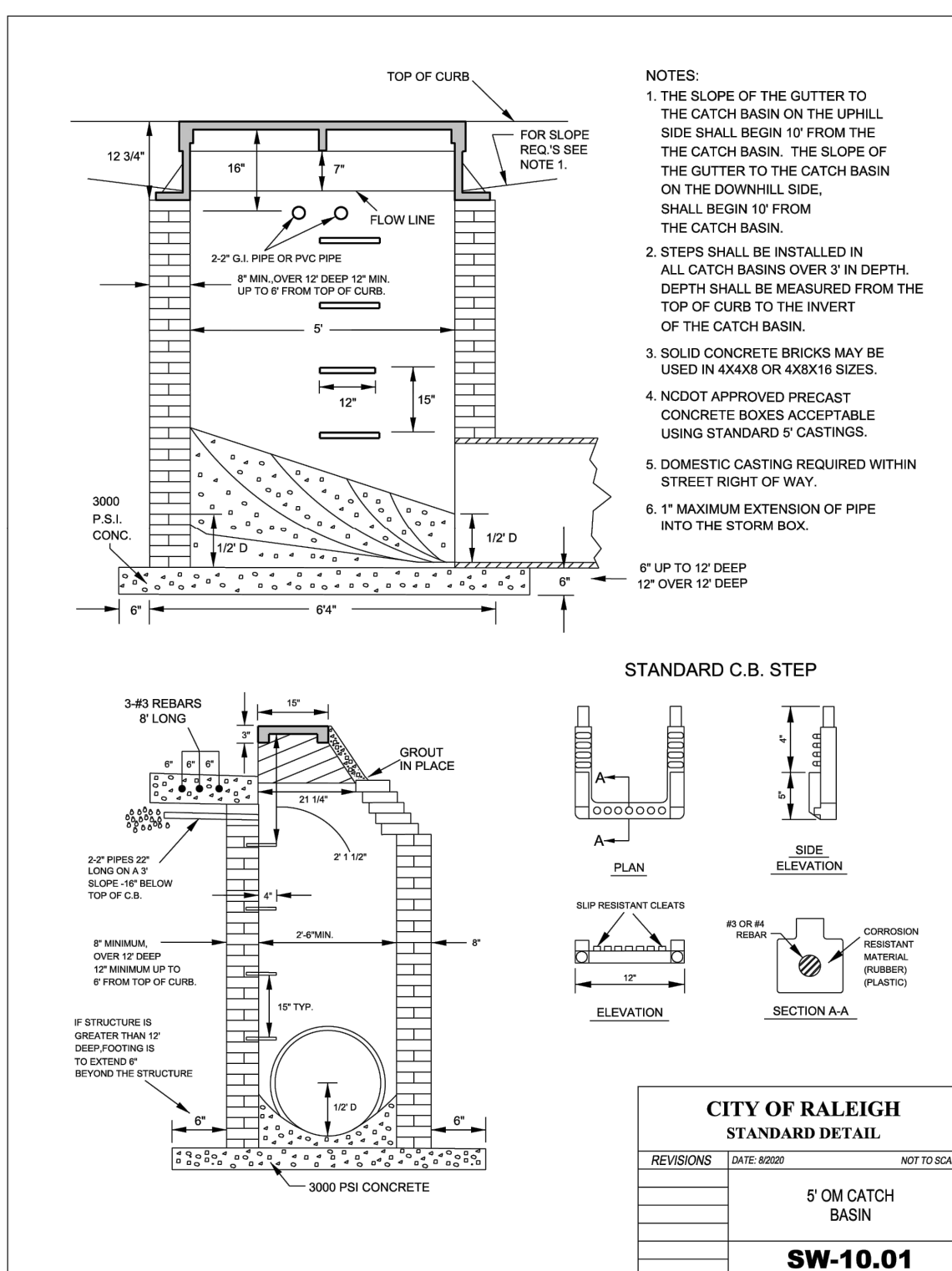
- NOTES:
1. COVER WEIGHT: 13 LBS +/- 1%.
 2. LIDS TO BE COATED WITH EPDM RUBBER GASKET FOR WATER TIGHTNESS.
 3. BOLTS AND NUTS MUST BE MANUFACTURED FROM SAME DOMESTIC FOUNDRY.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
WATER METER BOX DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-25	R.K.V.	8-28-13	J.P.S.

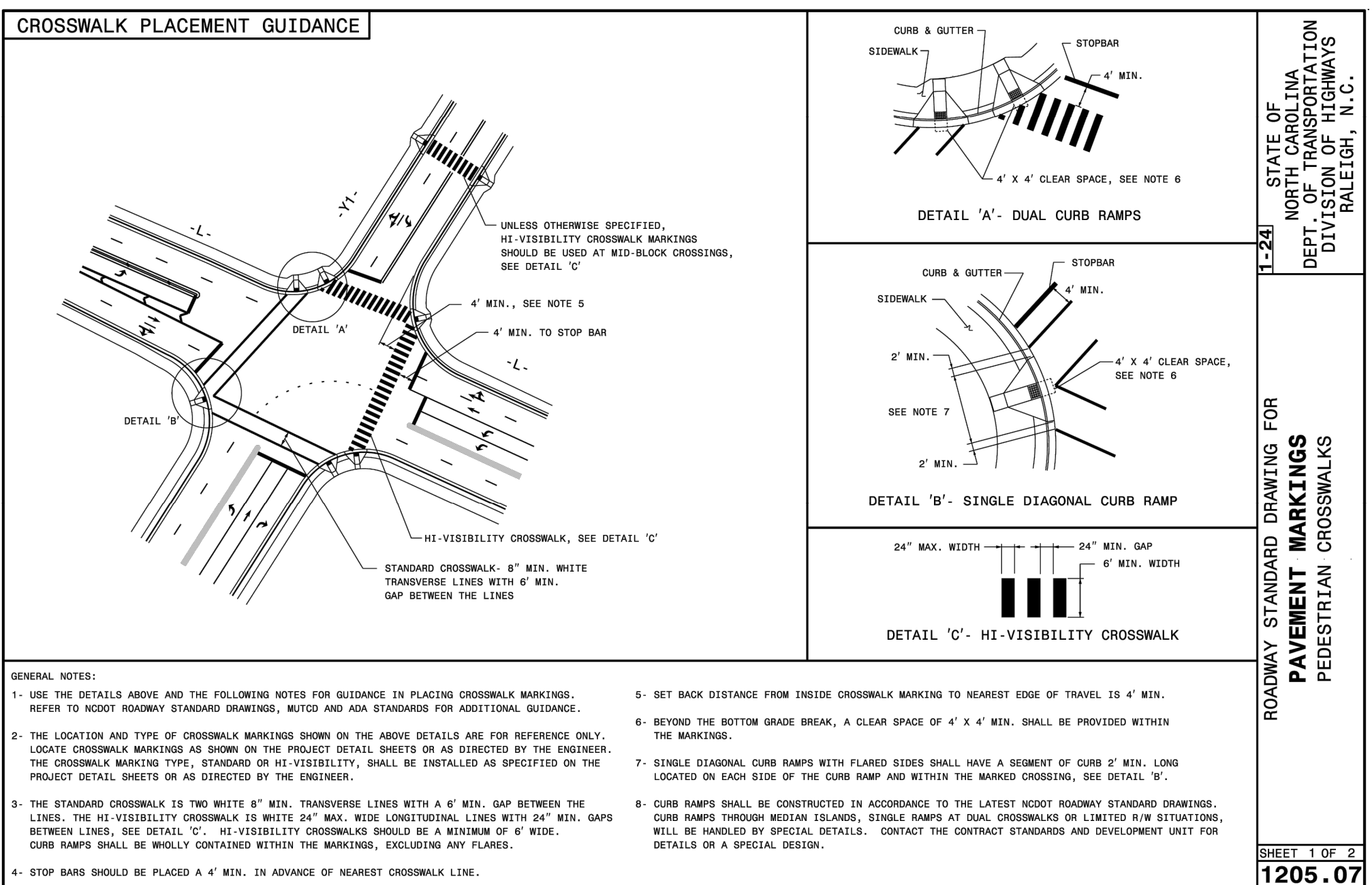
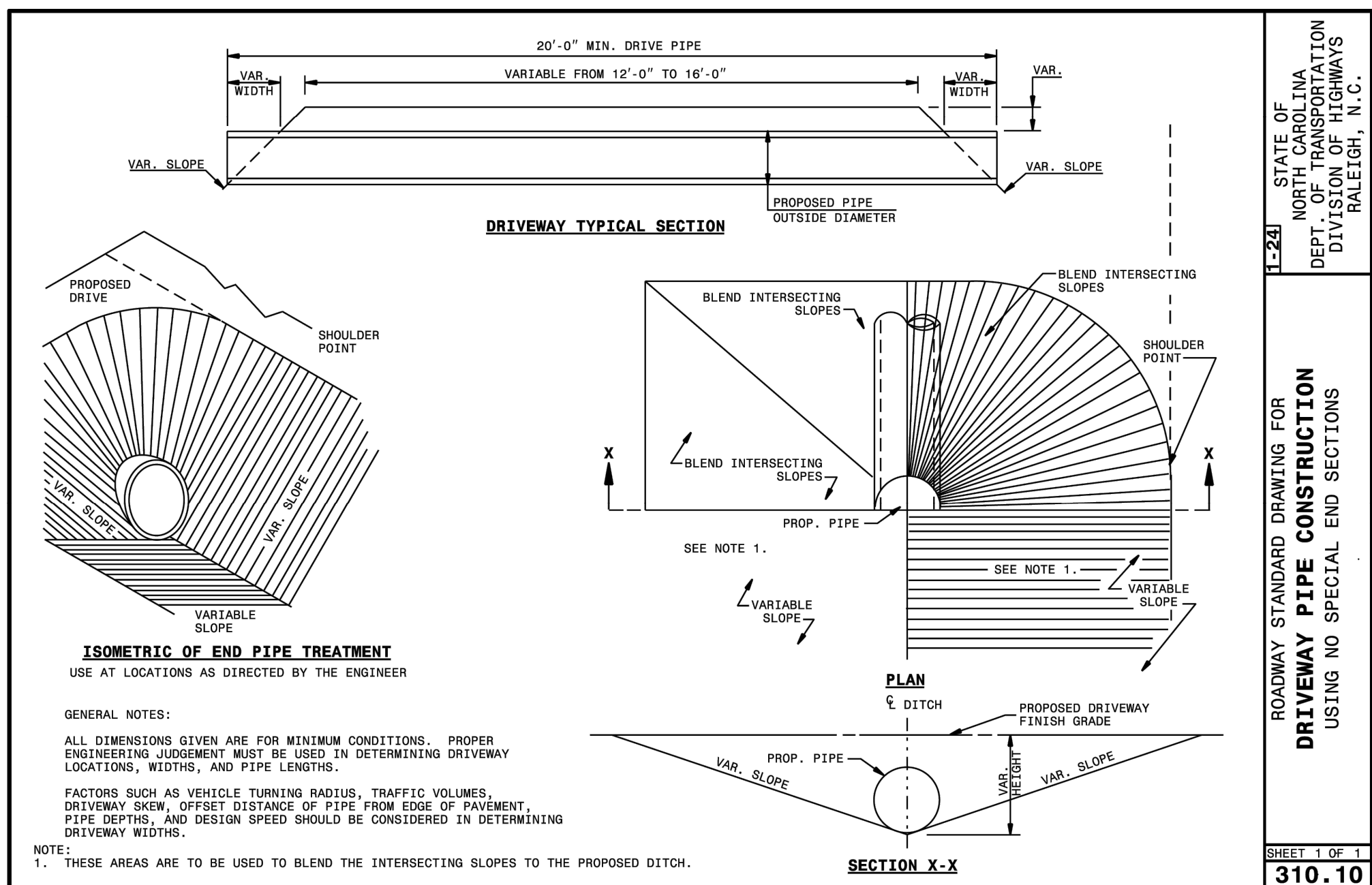
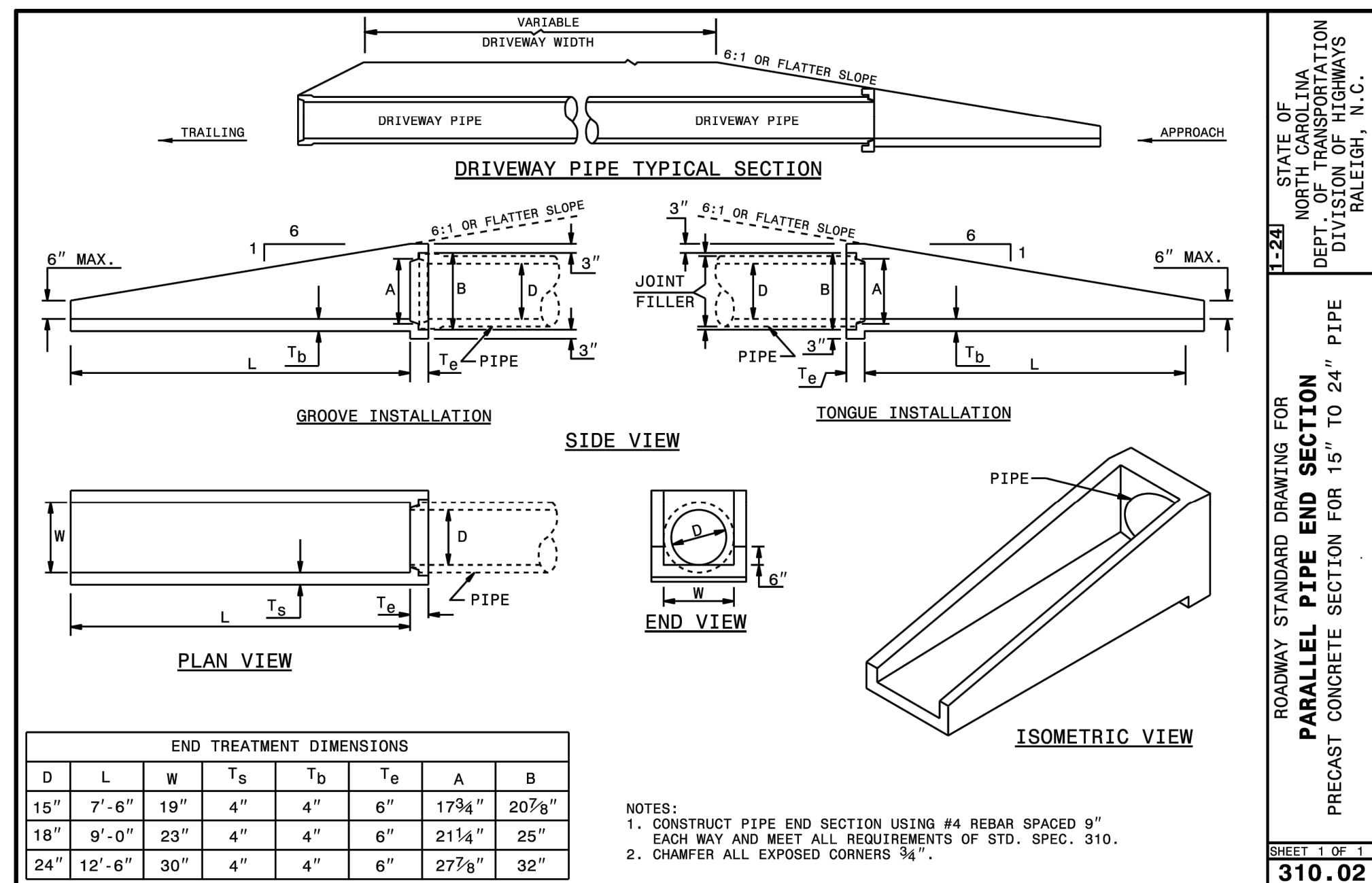
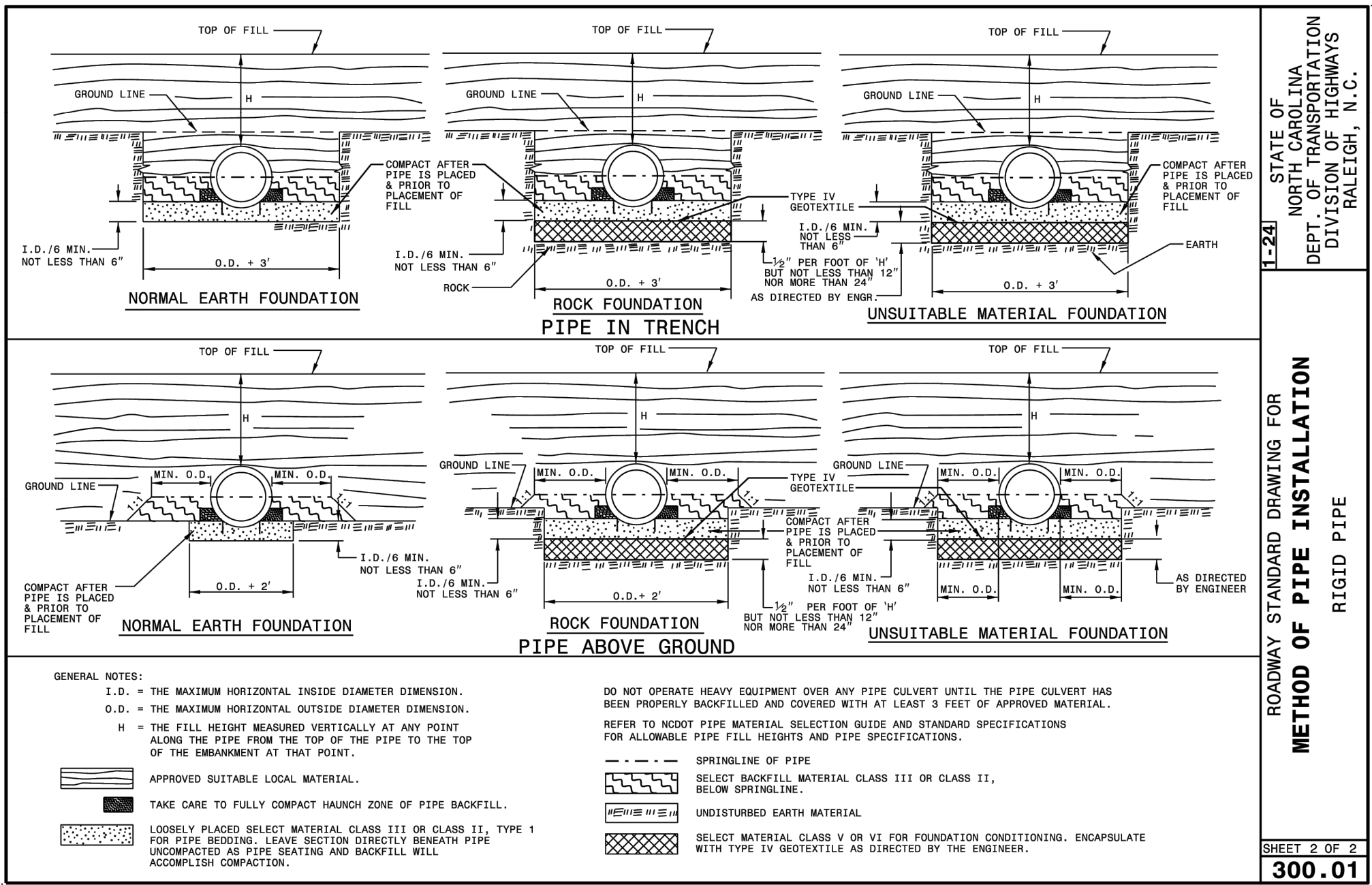
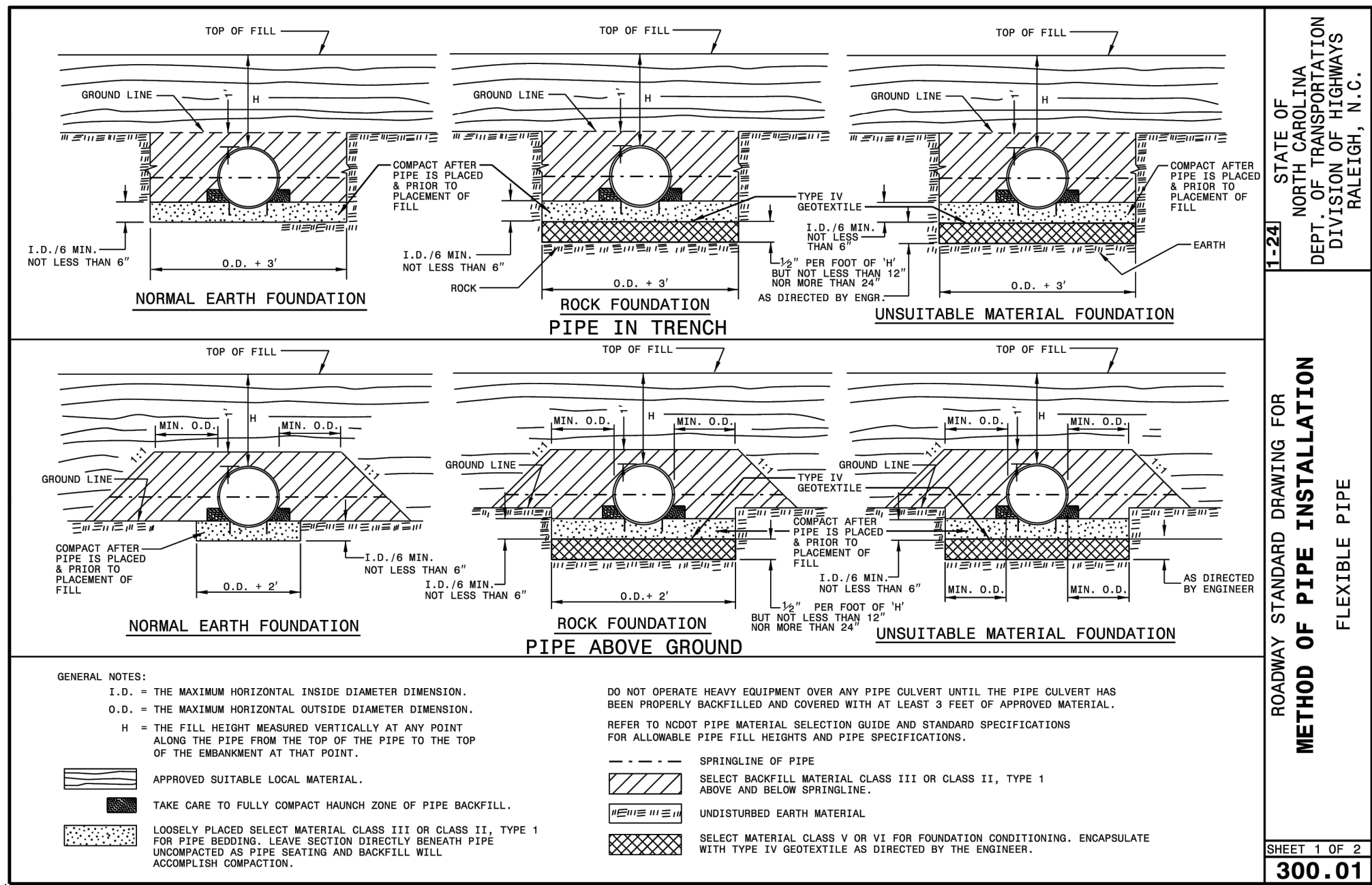
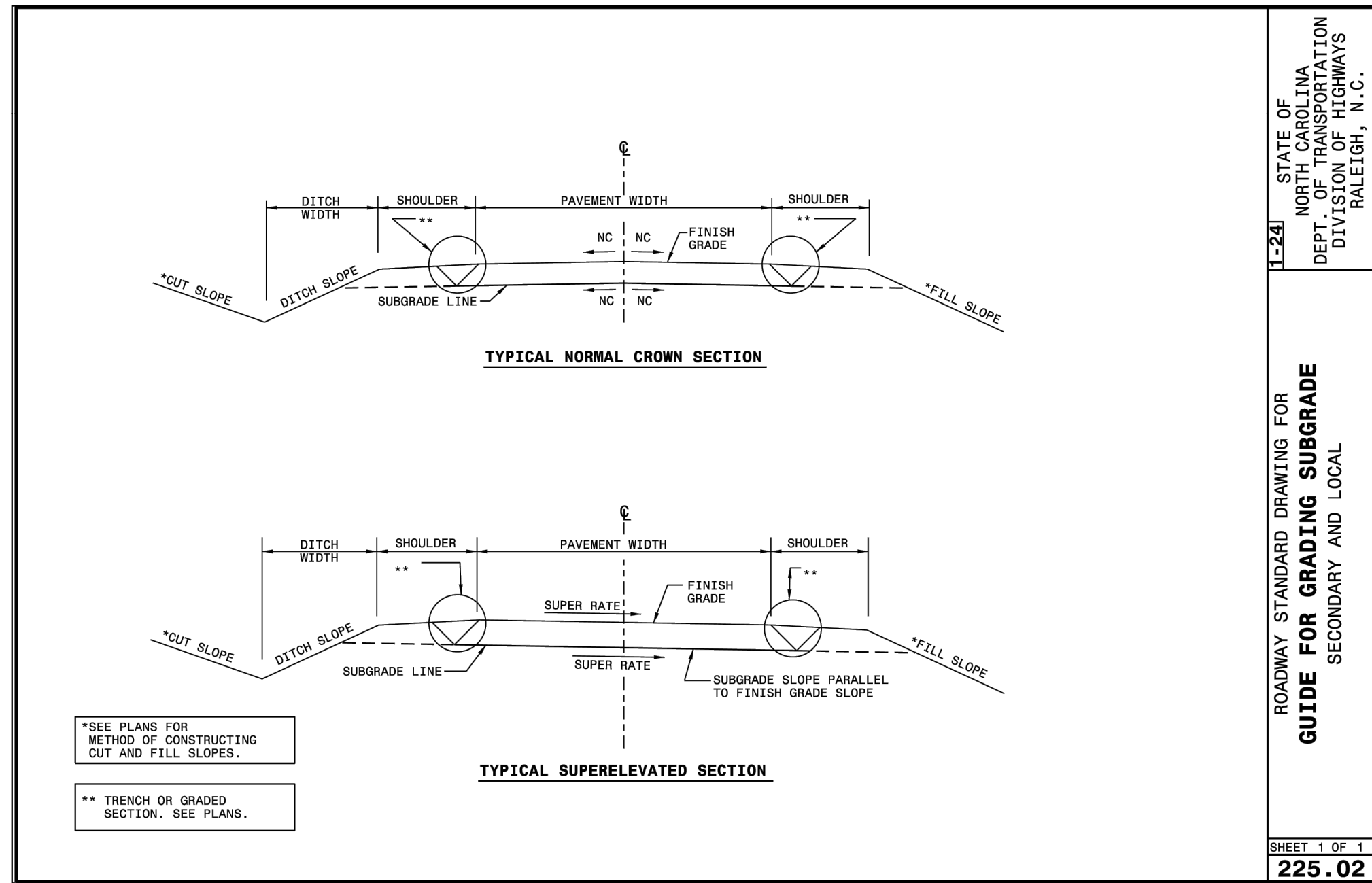


- NOTES:
1. COVER WEIGHT: 13 LBS +/- 1%.
 2. LIDS TO BE COATED WITH EPDM RUBBER GASKET FOR WATER TIGHTNESS.
 3. BOLTS AND NUTS MUST BE MANUFACTURED FROM SAME DOMESTIC FOUNDRY.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES			
PERMANENT WATER MAIN BLOW OFF ASSEMBLY			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-22	D.W.C.	4-13-04	D.H.L.



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GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 OPTIONAL CONSTRUCTION - HOLLOW-TYPE FROM 3" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12'-0". STD. DWG. 840.45 OR 840.46 CONTROLS MAXIMUM DEPTH IF PRECAST BOX IS USED.
 CONSTRUCT WITH PIPE CROWN MATCHING.
 SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
 INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.
 INSTALL STONE DRAINS, OF A MINIMUM OF 1 CURB FOOT OF NO. 7MM STONE IN A POROUS FABRIC BAG OR BASK, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.

PLAN
WITH GRATE & FRAME REMOVED

SECTION X-X **SECTION Y-Y**

DOWEL

PIPE	SPAN	WIDTH	MIN. HEIGHT	BOTTOM SLAB	WALL	PER. CONC.	CONC. IN BOX	C.M.	R.C.
12"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.592	0.015	0.026	
15"	3'-0"	2'-3"	2'-3"	0.648	0.093	0.036			
18"	3'-0"	2'-6"	2'-6"	0.703	0.093	0.048			
24"	3'-0"	3'-0"	3'-0"	0.814	0.059	0.085			
30"	3'-0"	3'-6"	3'-6"	0.222	0.222	0.925	0.092	0.127	

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

ROADWAY STANDARD DRAWING FOR **CONCRETE DROP INLET 12" THRU 30" PIPE**

SHEET 1 OF 1 **840.14**

SECTION G-G

PLAN OF FRAME CAST IRON

SECTION H-H

SECTION E-E

SECTION F-F

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

ROADWAY STANDARD DRAWING FOR **DROP INLET FRAME AND GRATES** FOR USE WITH STD. DWG. S 840.14 AND 840.15

SHEET 1 OF 1 **840.16**

SECTION 'A-A' **SECTION 'B-B'**

WAFFLE WALL PLAN VIEW **SOLID WALL PLAN VIEW**

WAFFLE WALL ISOMETRIC VIEW **SOLID WALL ISOMETRIC VIEW**

THE PATTERN OF THE KNOCK-OUT PANELS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.

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

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

SHEET 1 OF 2 **840.45**

GENERAL NOTES:
 THIS PRECAST BOX MAY BE USED FOR THE FOLLOWING STANDARDS: 840.01, 840.02, 840.04, 840.05, 840.13, 840.14, 840.15, 840.17, 840.18, 840.19, 840.26, 840.27, 840.28, 840.31, 840.32 AND 840.41.
 INSTALL PRECAST DRAINAGE STRUCTURES AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 840.
 DO NOT PLACE PRECAST DRAINAGE STRUCTURES UNDER TRAFFIC OR WHERE TRAFFIC WILL BE DETOURED.
 USE 4000 PSI CONCRETE.
 PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A1064.
 LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB FOR WAFFLE WALL STRUCTURE TO 10'-0"; LIMIT SOLID WALL STRUCTURE TO 15'-0".
 PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
 CUT OR FORM OPENINGS FOR PIPE TO PROVIDE REQUIRED SIZE AND LOCATION. ORIENT WAFFLE WALL STRUCTURES SO THAT PIPES ENTER THROUGH THE KNOCKOUT/WAFFLE PANELS ONLY. PIPES MAY ENTER THROUGH THE CORNERS OF SOLID WALL BOXES IF A MINIMUM OF 6" OF WALL IS PROVIDED ABOVE THE HOLE.
 ALL ELEMENTS PRECAST TO MEET ASTM C913.
 FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.25.
 PROVIDE PRECAST STRUCTURES OVER 3'-6" IN DEPTH WITH STEPS AS DIRECTED BY THE ENGINEER.
 WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
 SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-S-21A, AASHTO M-198, TYPE B - BUTYL RUBBER.
 LIMIT MAXIMUM STRUCTURE SIZE TO INSIDE CLEAR DIMENSIONS OF 5'-0" X 5'-0".
 THE OUTSIDE PIPE DIAMETER PLUS 2" OR THE OPENING REQUIRED FOR FRAME AND GRATE IS THE MINIMUM STRUCTURE SIZE WHICHEVER IS GREATER.
 USE MANHOLE FRAME AND COVER AS INDICATED ON THE PLANS. REINFORCE OPENING AS SHOWN ON THIS SHEET.

SECTION 'C-C'

PLAN TOP SLAB

CORNER CUT DETAIL (SOLID WALL BOX)

PRECAST RISER PLAN

PRECAST RISER DETAIL

OPTIONAL JOINT DETAILS

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

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

SHEET 2 OF 2 **840.45**

ISOMETRIC VIEW

SECTION A-A **SECTION B-B**

PLAN VIEW

A	B	X	Y
0'-0"	0'-0"	0'-0"	0'-0"
0'-0"	0'-0"	0'-0"	0'-0"
0'-0"	0'-0"	0'-0"	0'-0"
0'-0"	0'-0"	0'-0"	0'-0"
0'-0"	0'-0"	0'-0"	0'-0"
0'-0"	0'-0"	0'-0"	0'-0"
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0'-0"	0'-0"	0'-0"	0'-0"
0'-0"	0'-0"	0'-0"	0'-0"
0'-0"	0'-0"	0'-0"	0'-0"

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

ROADWAY STANDARD DRAWING FOR **CURB RAMP PROPOSED CURB AND GUTTER**

SHEET 1 OF 13 **848.06**

TYPE III BARRICADE

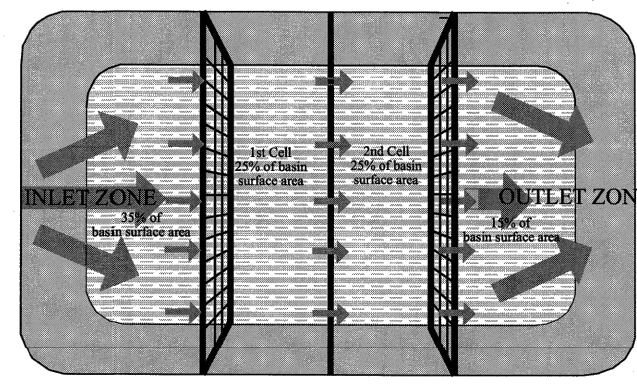
GENERAL NOTES:
 1- HORIZONTAL RAILS FOR BARRICADES MAY BE CONSTRUCTED OF APPROVED COMPOSITE, HOLLOW/ CORRUGATED EXTRUDED RIGID POLYOLEFIN, HIGH DENSITY POLYETHYLENE, OR OTHER MCDOT APPROVED MATERIAL.
 2- BARRICADE SHALL BE LIMITED TO A MAXIMUM LENGTH OF 8 FT UNLESS MCDOT APPROVED.
 3- ONLY MCDOT APPROVED COMPOSITE AND ROLL-UP SIGNS MAY BE MOUNTED ON THE BARRICADE RAILS. MOUNT SIGNS TO BARRICADE RAILS TO ENSURE SIGN WILL NOT BECOME DETACHED UNDER NORMAL WIND AND TRAFFIC CONDITIONS.
 4- SIGNS SHALL BE MOUNTED A MINIMUM OF 1 FOOT FROM THE GROUND TO THE BOTTOM OF THE SIGN UNLESS SIGN R11-3 IS REQUIRED BY THE PLANS OR DIRECTED BY THE ENGINEER.
 5- ASSEMBLY OF THE GENERIC BARRICADES MUST BE SELF CERTIFIED BY THE ASSEMBLER.
 6- BARRICADES USED TO CLOSE A ROADWAY SHALL EXTEND ACROSS THE ENTIRE ROADWAY. WHERE LOCAL TRAFFIC MUST BE MAINTAINED, THEY MAY BE PLACED IN A STAGGERED PATTERN.
 7- STRIPES ON WORK ZONE BARRICADE RAILS SHALL BE ALTERNATE ORANGE AND WHITE RETROREFLECTIVE STRIPES, SLOPED DOWNWARD TOWARD THE SIDE WHICH TRAFFIC IS TO PASS OR TURN IN RETURNING. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.
 8- USE RED AND WHITE STRIPES FOR PERMANENT BARRICADES.
 9- ALL BARRICADES MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.
 10- PLACE SANDBAGS OR OTHER APPROVED BALLASTING METHODS ON THE FEET OF THE FRAME. DO NOT PLACE SANDBAGS ON TOP OF A STRIPED RAIL OR STABILIZER BAR. DO NOT BALLAST BARRICADES WITH HEAVY OBJECTS SUCH AS ROCKS, CHUNKS OF CONCRETE OR OTHER ITEMS THAT WOULD CAUSE DAMAGE IF THE BARRICADE IS STRUCK BY A VEHICLE.

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

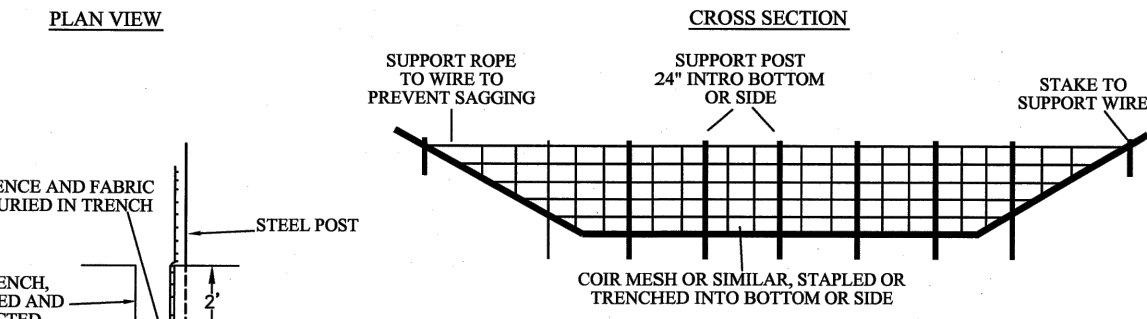
ROADWAY STANDARD DRAWING FOR **BARRICADES TYPE-III**

SHEET 1 OF 1 **1145.01**

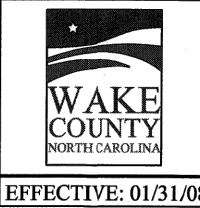
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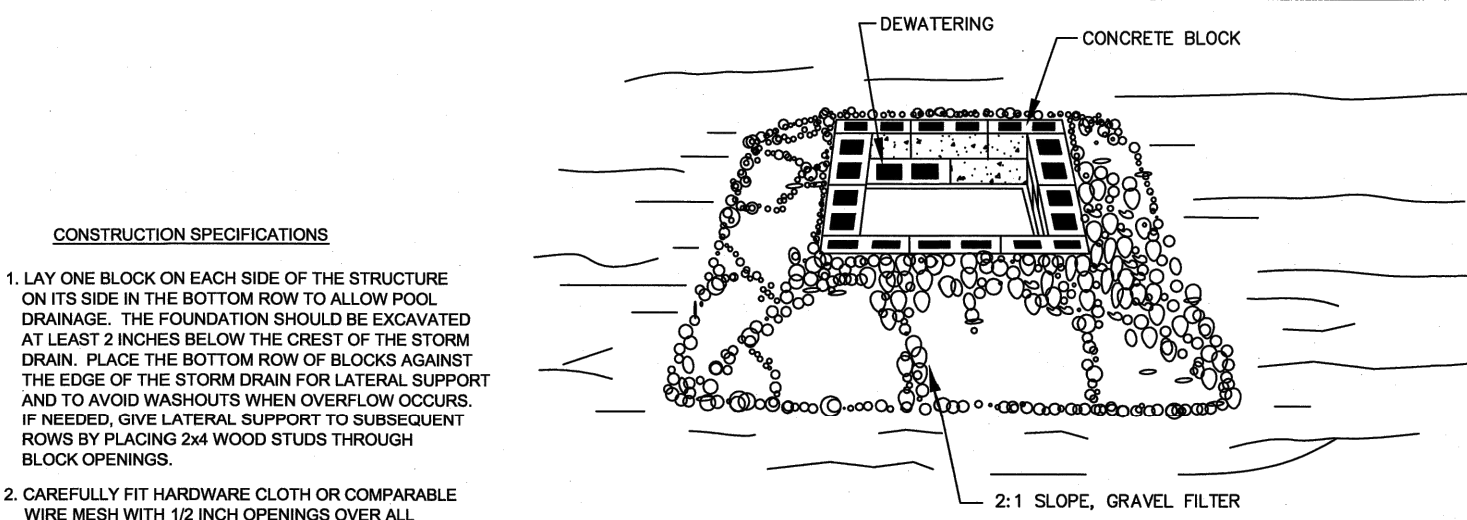
- NOTES:
1. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCING AS FOR SILT FENCE.
 2. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
 3. PROVIDE 3 BAFFLES (USE TWO IF LESS THAN 20 FEET IN LENGTH). PROVIDE 5 BAFFLES FOR DRAINAGE AREAS GREATER THAN 10 ACRES.
 4. BAFFLES SHALL BE 180 GRAD CORNER EROSION BLANKETS.
 5. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS.
 6. INSPECT BAFFLES FOR REPAIR ONCE A WEEK AND AFTER EACH RAINFALL.



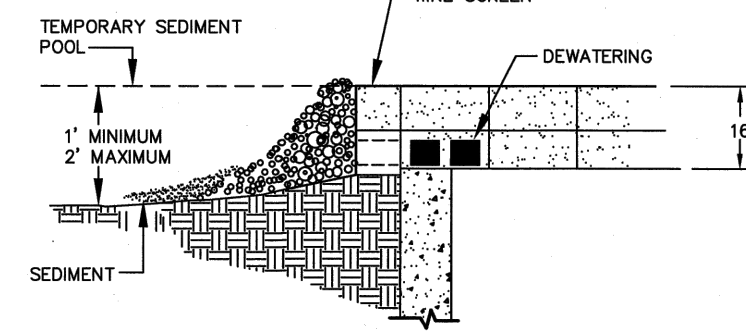
STANDARD BAFFLES DETAIL



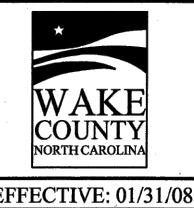
EFFECTIVE: 01/31/08



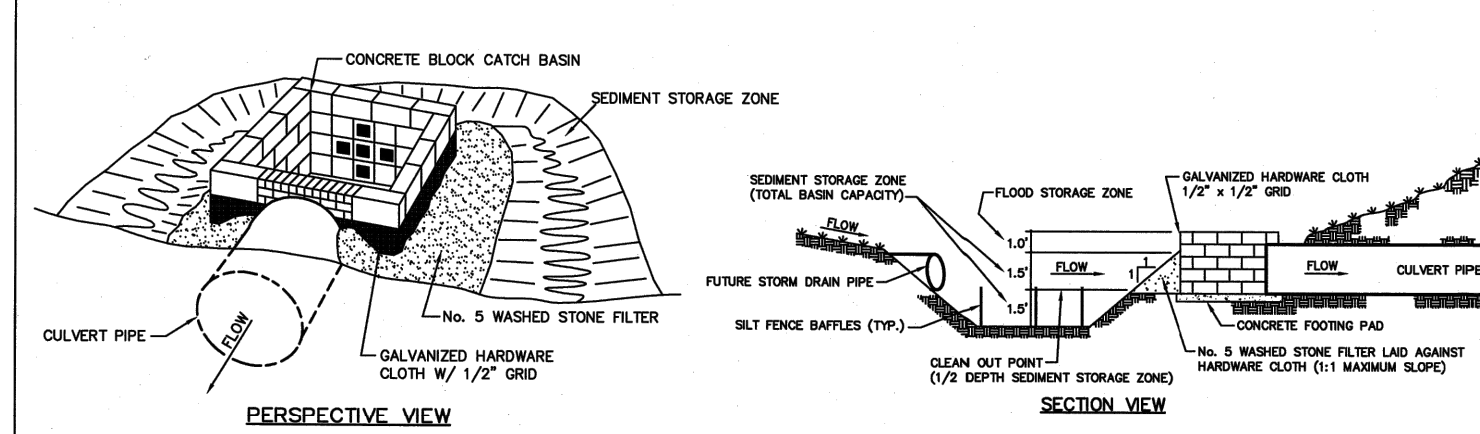
- CONSTRUCTION SPECIFICATIONS
1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE IN THE BOTTOM ROW TO ALLOW POOL DRAINAGE. THE FOUNDATION SHOULD BE EXCAVATED AT LEAST 2 INCHES BELOW THE CREST OF THE STORM DRAIN. PLACE THE BOTTOM ROW OF BLOCKS AGAINST THE EDGE OF THE STORM DRAIN FOR LATERAL SUPPORT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



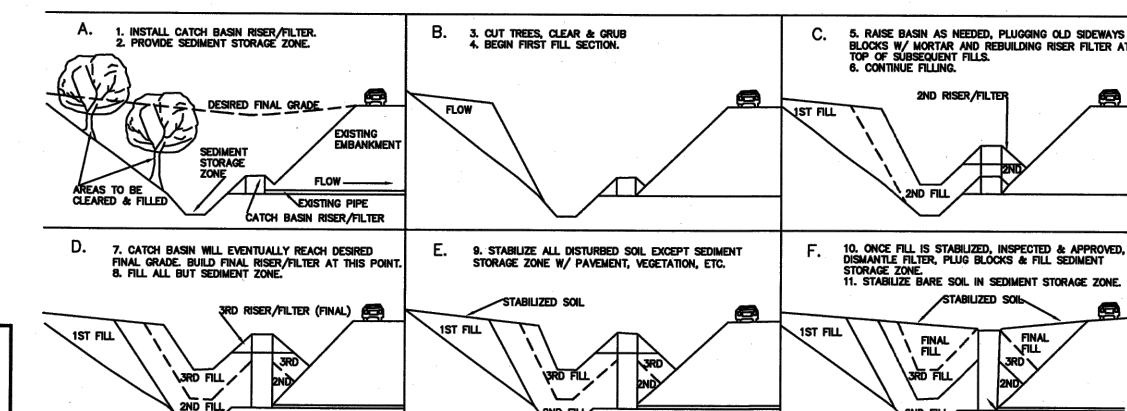
STANDARD BLOCK & GRAVEL DROP INLET PROTECTION



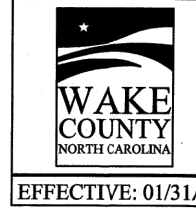
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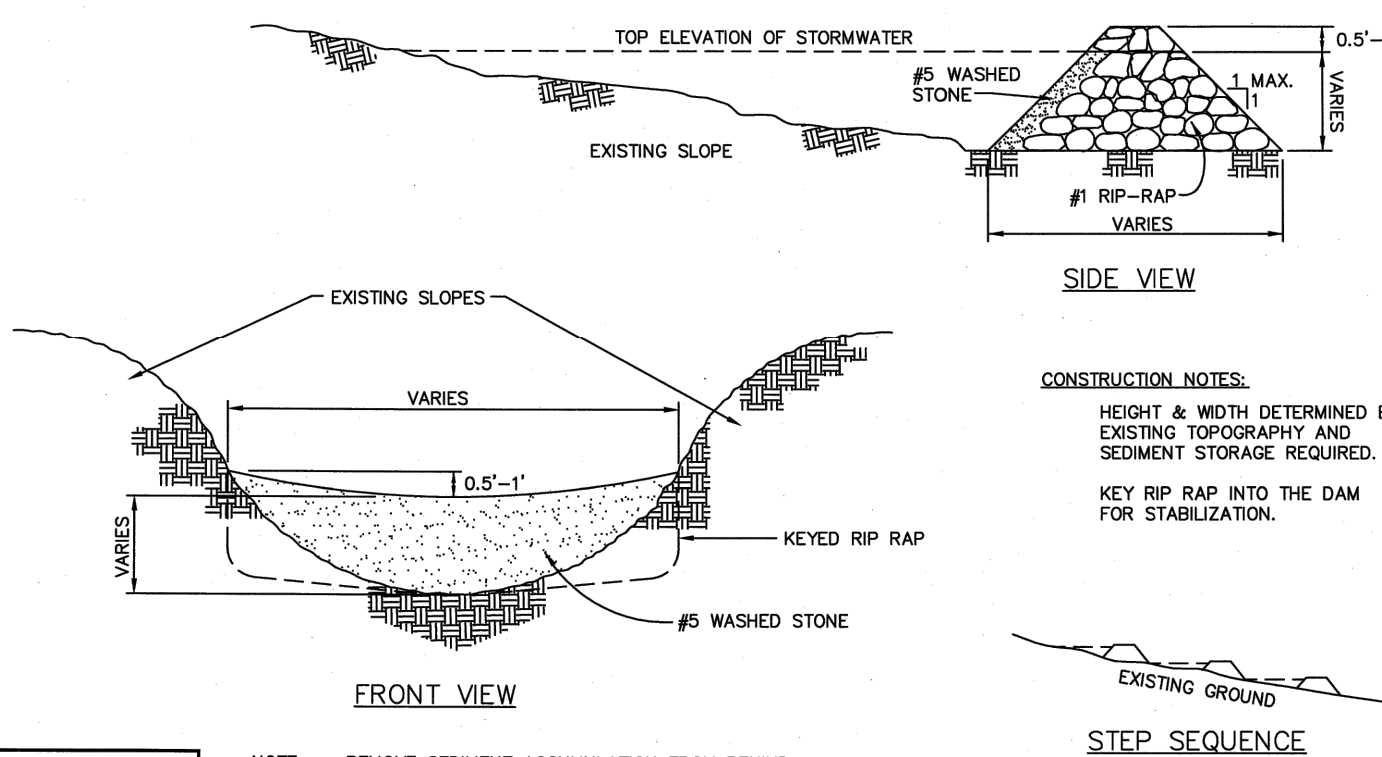
USE OF CATCH BASIN RISER/FILTER ON FILL SITES



STANDARD CATCH BASIN RISER/FILTER

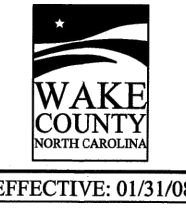


EFFECTIVE: 01/31/08

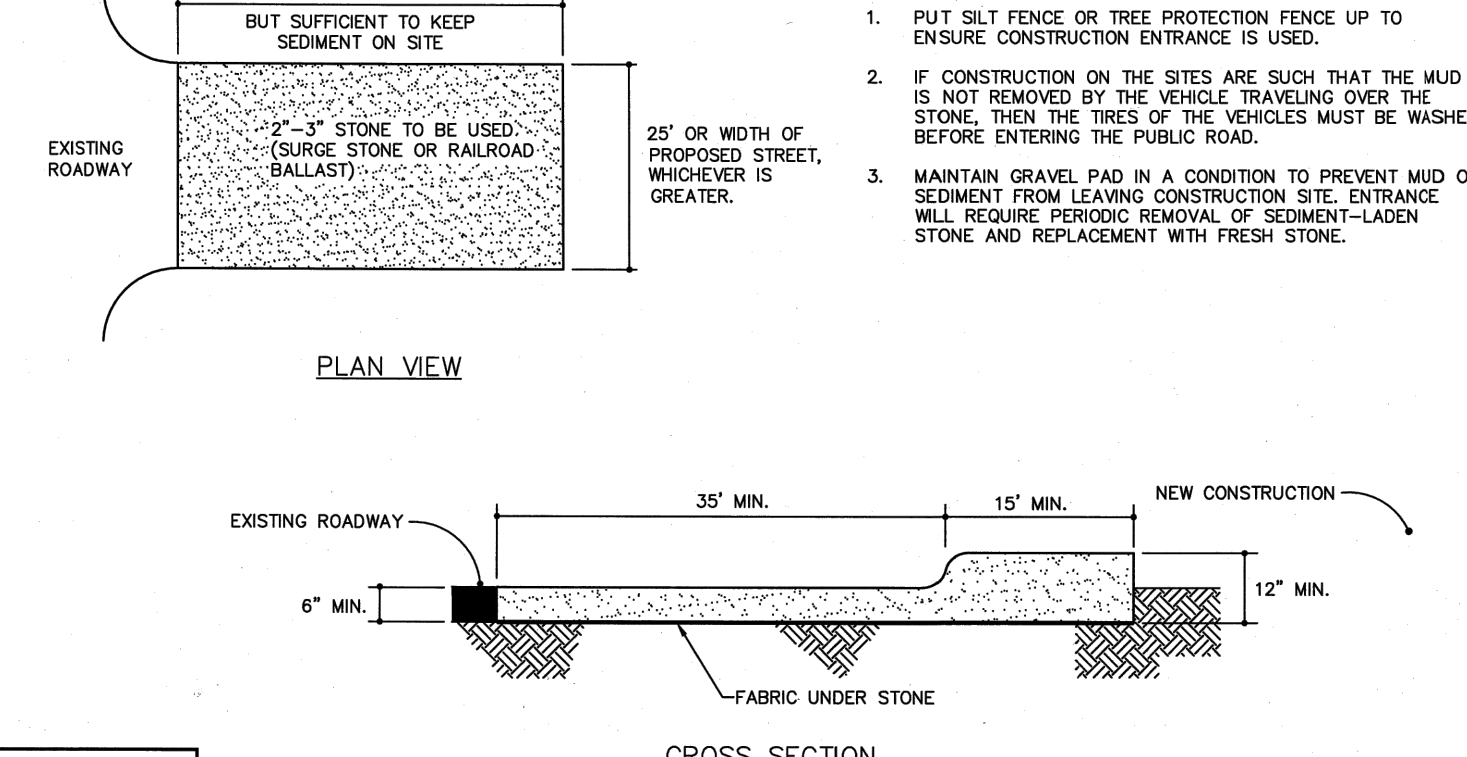


- CONSTRUCTION NOTES:
- HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.
 - KEY RIP RAP INTO THE DAM FOR STABILIZATION.

STANDARD CHECK DAM

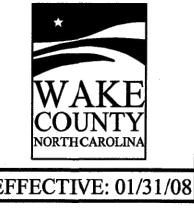


EFFECTIVE: 01/31/08

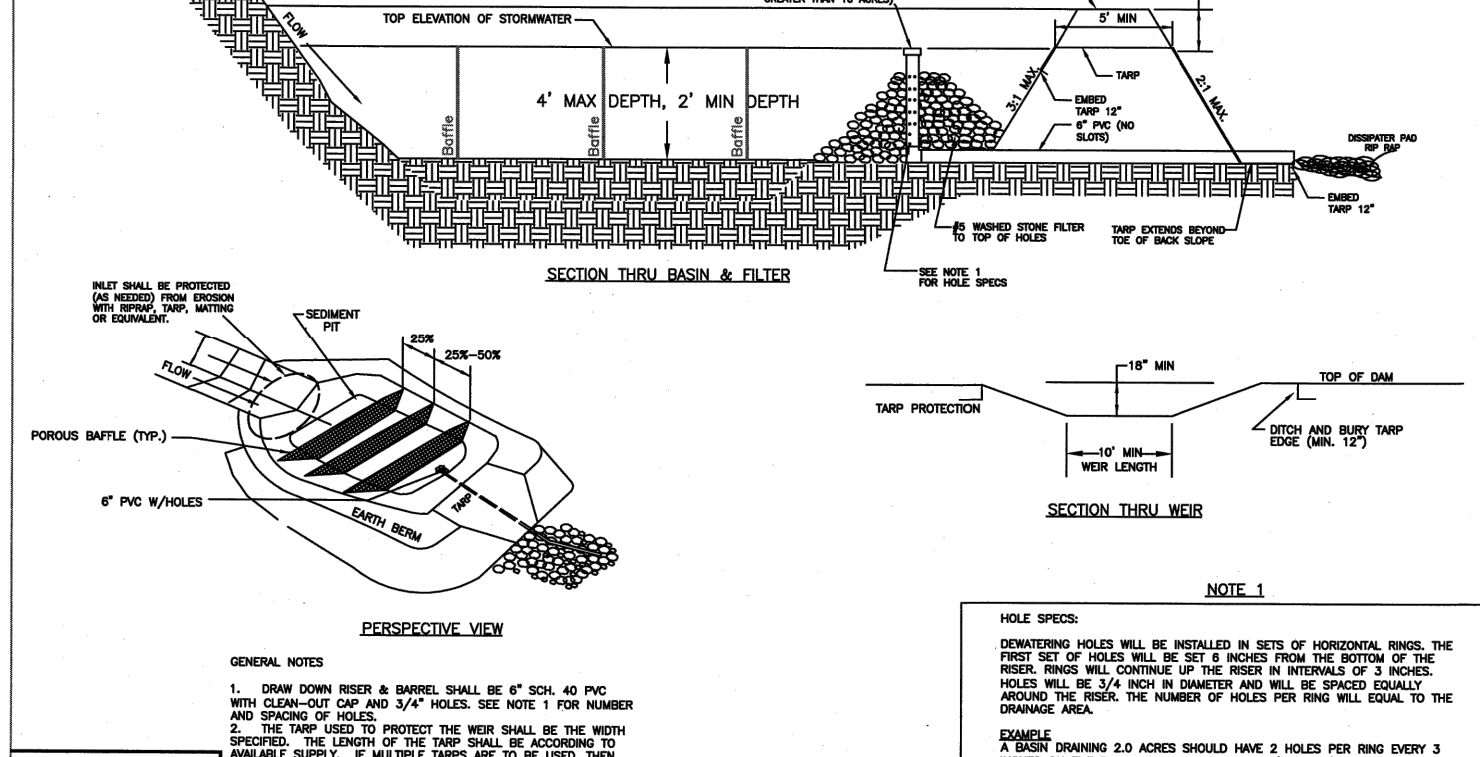


- NOTES:
1. PUT SILT FENCE OR TREE PROTECTION FENCE UP TO ENSURE CONSTRUCTION ENTRANCE IS USED.
 2. IF CONSTRUCTION ON THE SITES ARE SUCH THAT THE MUD IS NOT REMOVED BY THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD.
 3. MAINTAIN GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING CONSTRUCTION SITE. ENTRANCE WILL REQUIRE PERIODIC REMOVAL OF SEDIMENT-LADEN STONE AND REPLACEMENT WITH FRESH STONE.

STANDARD CONSTRUCTION ENTRANCE

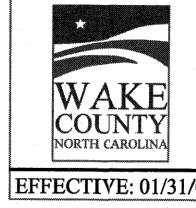


EFFECTIVE: 01/31/08

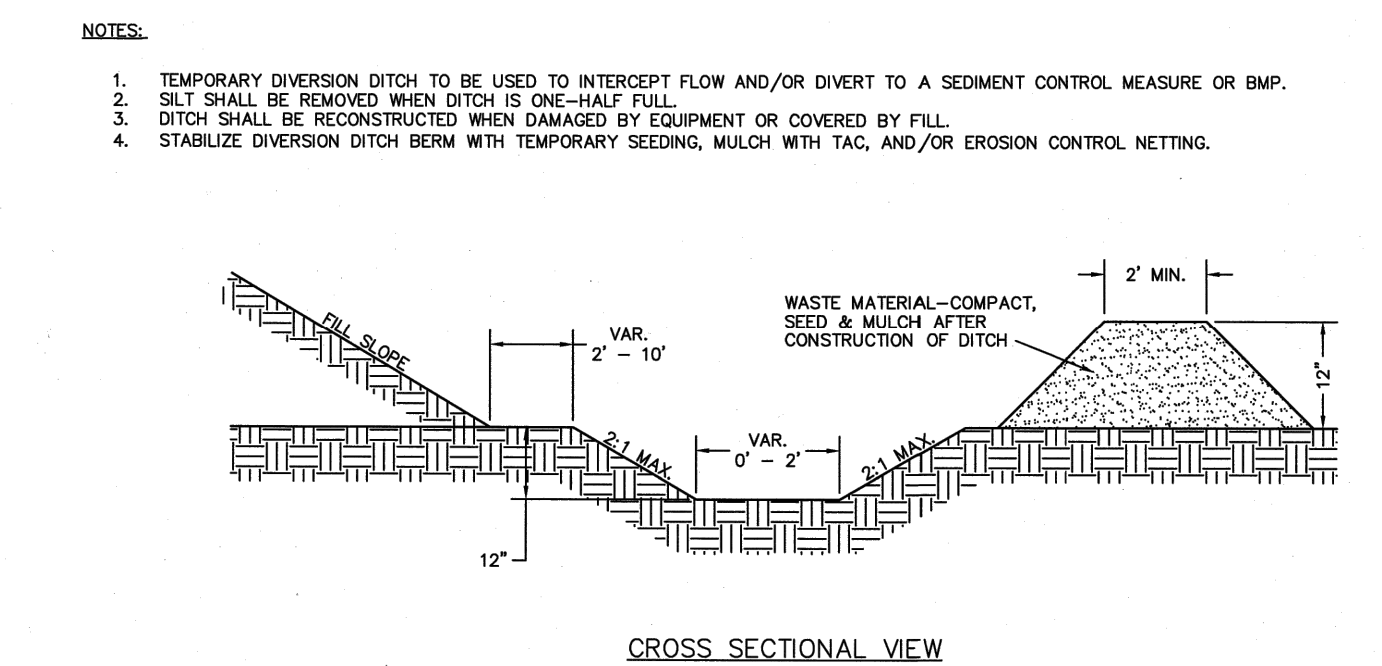


- NOTE 1:
- HOLE SPICES
- CONCRETE HOLES SHALL BE INSTALLED IN SETS OF HORIZONTAL HOLES. THE FIRST SET OF HOLES SHALL BE 3/4" HIGHER FROM THE TOP OF THE WALL THAN THE SECOND SET. THE SPACING BETWEEN HOLES SHALL BE 3/4" HIGHER IN DIAMETER AND WILL BE SPACED EQUALLY AROUND THE PERIMETER. THE NUMBER OF HOLES PER SET SHALL BE 10.
- GENERAL NOTES:
1. DRAIN DOWN RISER & BASKET SHALL BE 4" DIA. AS PVC WITH 1/2" DIA. HOLES AND 1/4" HOLES. SEE NOTE 1 FOR NUMBER AND SPACING OF HOLES.
 2. THE TOP OF THE HOLES SHALL BE 1/4" ABOVE THE FINISH GRADE. THE HOLES SHALL BE 1/4" ABOVE THE FINISH GRADE. THE HOLES SHALL BE 1/4" ABOVE THE FINISH GRADE.
 3. THE HOLES SHALL BE 1/4" ABOVE THE FINISH GRADE. THE HOLES SHALL BE 1/4" ABOVE THE FINISH GRADE.
 4. THE HOLES SHALL BE 1/4" ABOVE THE FINISH GRADE. THE HOLES SHALL BE 1/4" ABOVE THE FINISH GRADE.

STANDARD CUSTOM BASIN

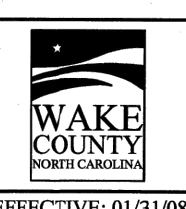


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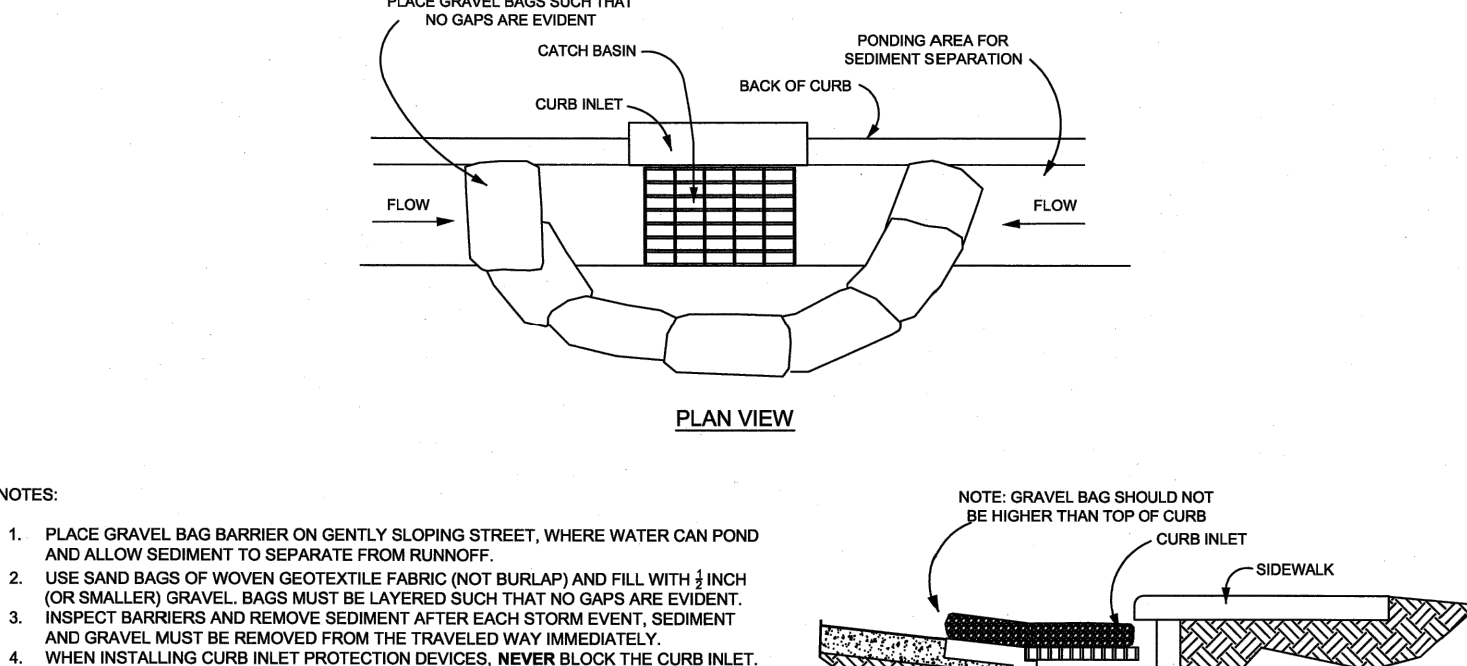


- NOTES:
1. TEMPORARY DIVERSION DITCH TO BE USED TO INTERCEPT FLOW AND/OR DIVERT TO A SEDIMENT CONTROL MEASURE OR BMP.
 2. SILT SHALL BE REMOVED WHEN DITCH IS ONE-HALF FULL.
 3. DITCH SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL.
 4. STABILIZE DIVERSION DITCH BERM WITH TEMPORARY SEEDING, MULCH WITH TAG, AND/OR EROSION CONTROL NETTING.

STANDARD TEMPORARY DIVERSION DITCH

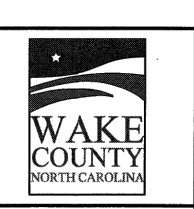


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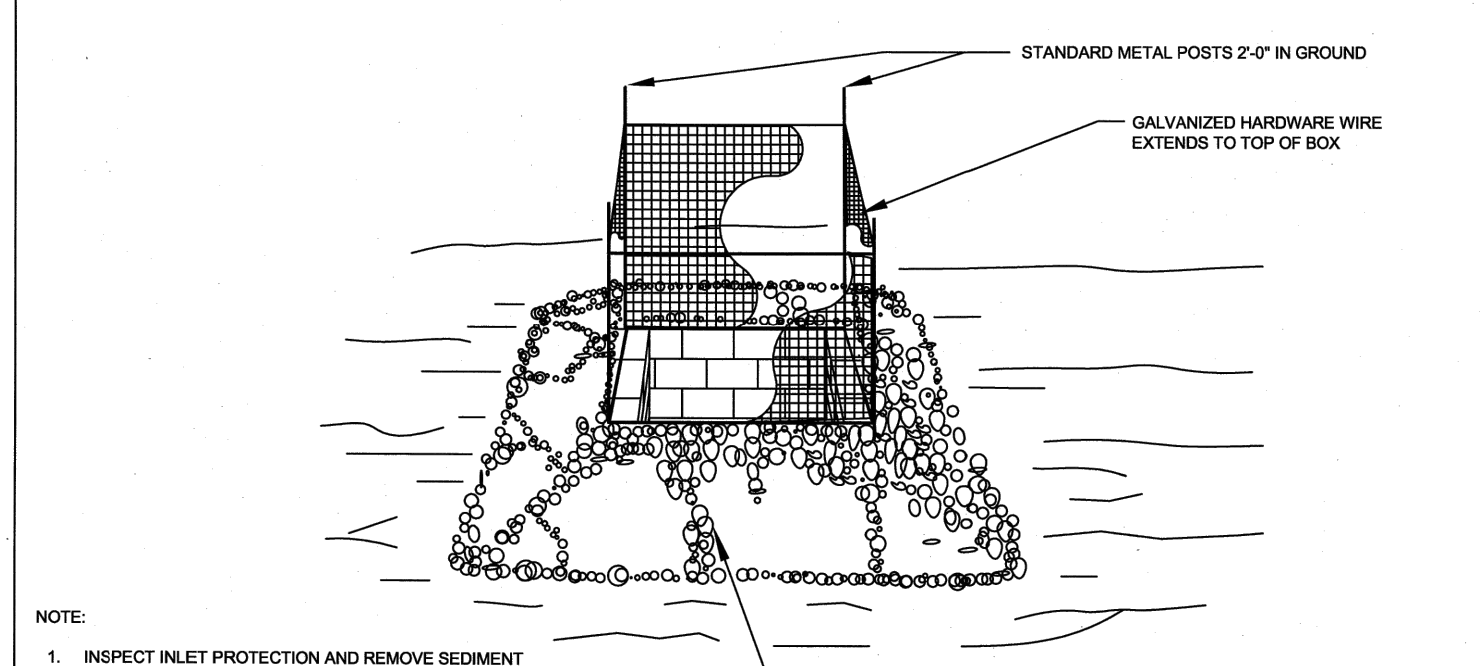


- NOTES:
1. PLACE GRAVEL BAG BARRIER ON GENTLY SLOPING STREET, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
 2. USE SAND BAGS OF WOVEN GEOTEXTILE FABRIC (NOT BURLAP) AND FILL WITH 3 INCH (OR SMALLER) GRAVEL. BAGS MUST BE LAYERED SUCH THAT NO GAPS ARE EVIDENT.
 3. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELER WAY IMMEDIATELY.
 4. WHEN INSTALLING CURB INLET PROTECTION DEVICES, NEVER BLOCK THE CURB INLET.

STANDARD GRAVEL BAG CURB INLET PROTECTION

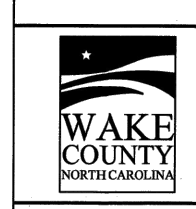


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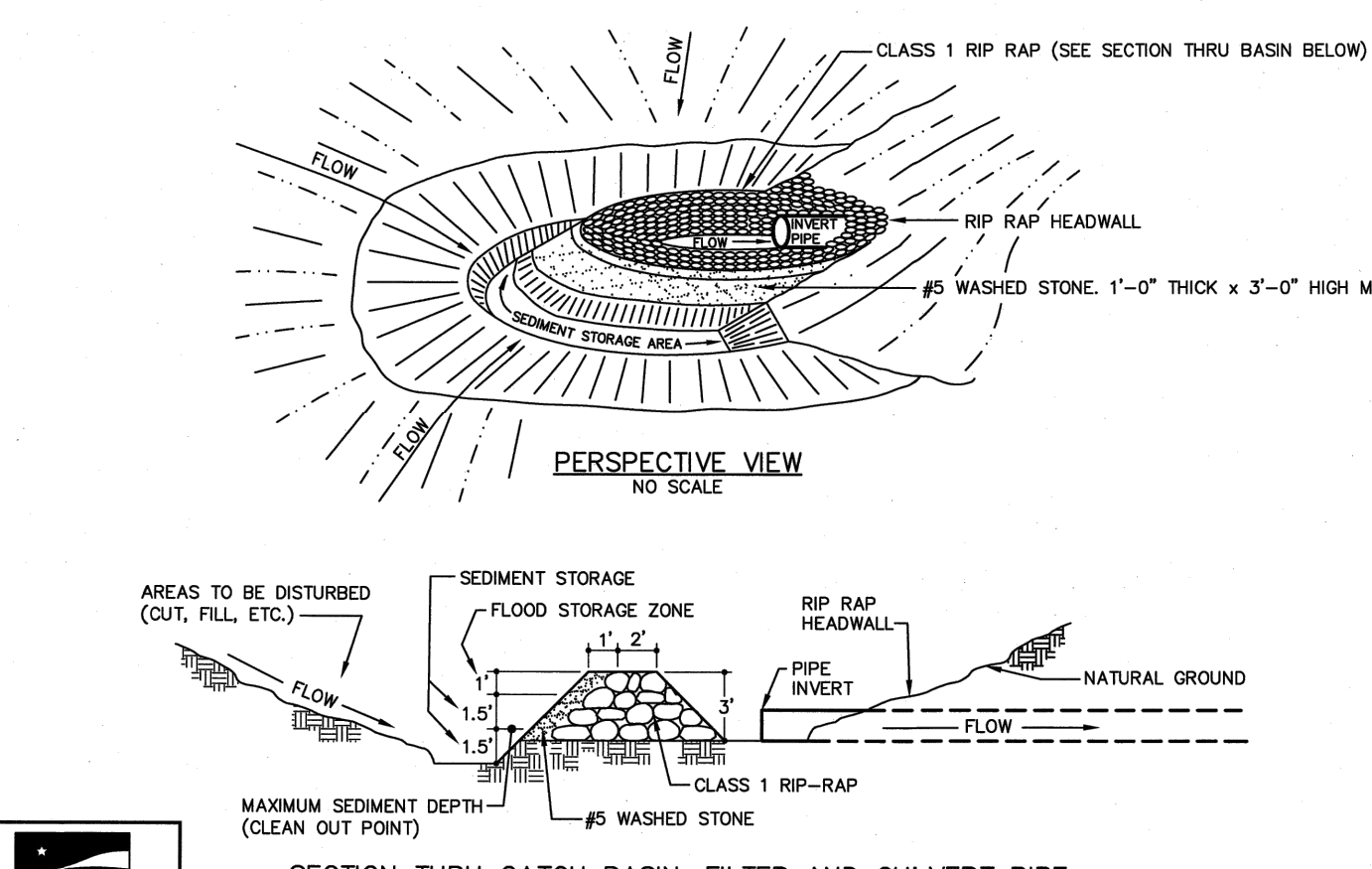


- NOTE:
1. INSPECT INLET PROTECTION AND REMOVE SEDIMENT AFTER EACH RAIN EVENT. GRAVEL SHOULD BE REPLACED AND REPAIRS MADE AS NEEDED.

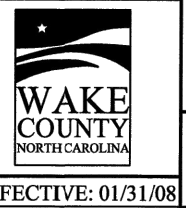
STANDARD GRAVEL YARD INLET PROTECTION



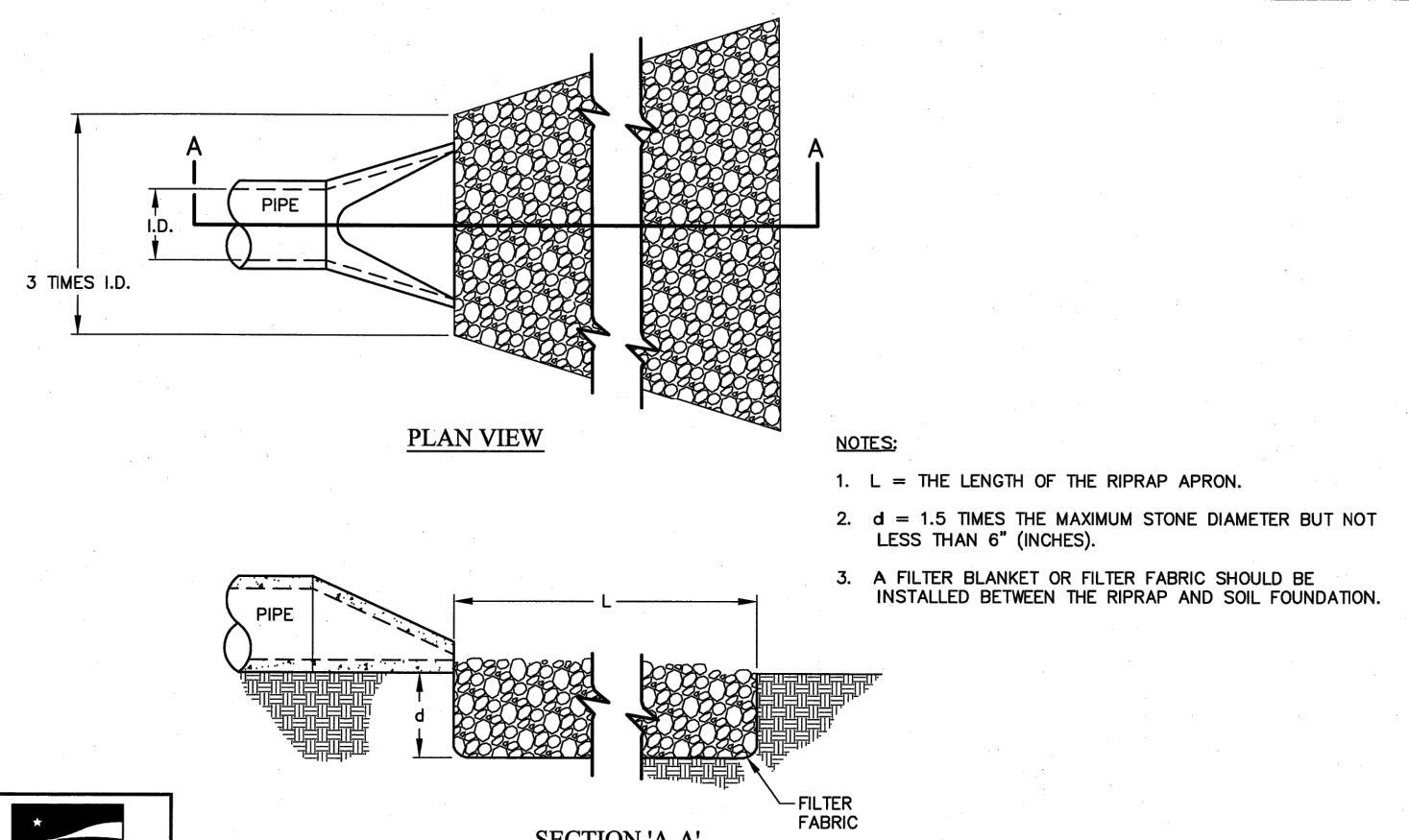
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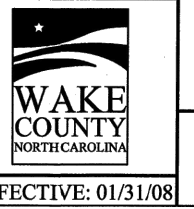
STANDARD HORSESHOE INLET PROTECTION



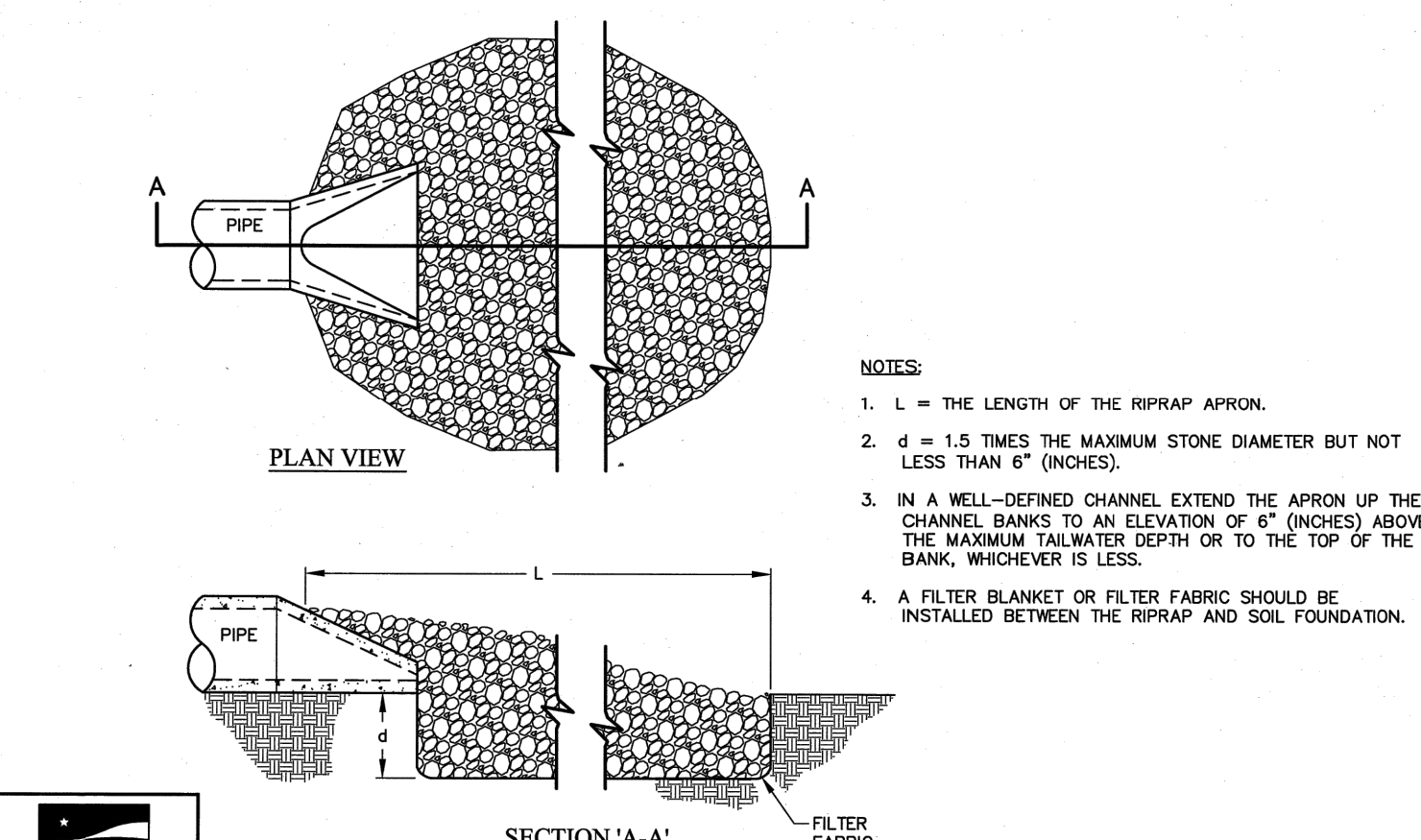
EFFECTIVE: 01/31/08



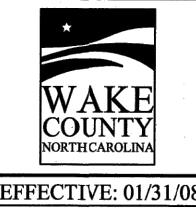
STANDARD PIPE OUTLET TO FLAT AREA NO WELL-DEFINED CHANNEL



EFFECTIVE: 01/31/08



STANDARD PIPE OUTLET TO WELL-DEFINED CHANNEL



EFFECTIVE: 01/31/08

EROSION AND SEDIMENT CONTROL

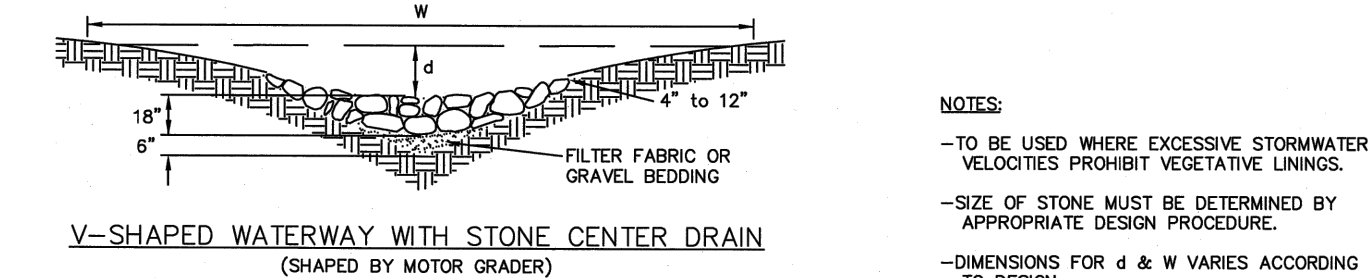
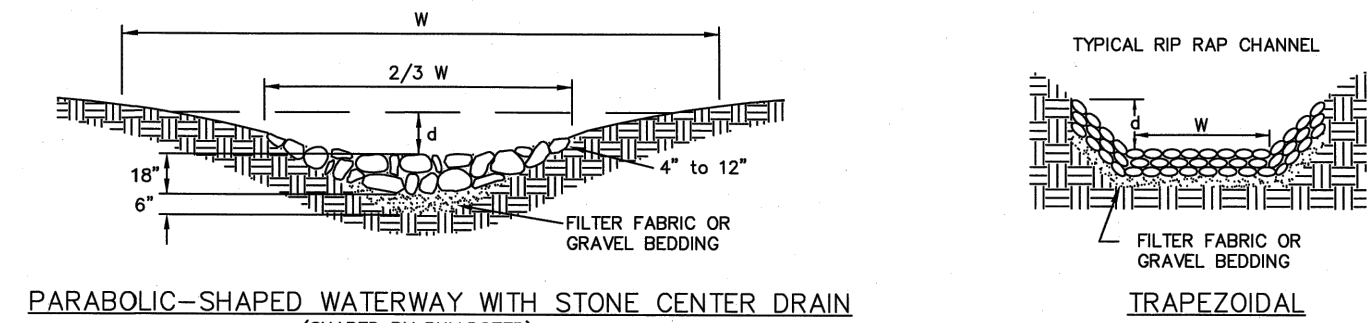
APPROVED PLAN

DATE: _____

PERMIT NO. S- _____

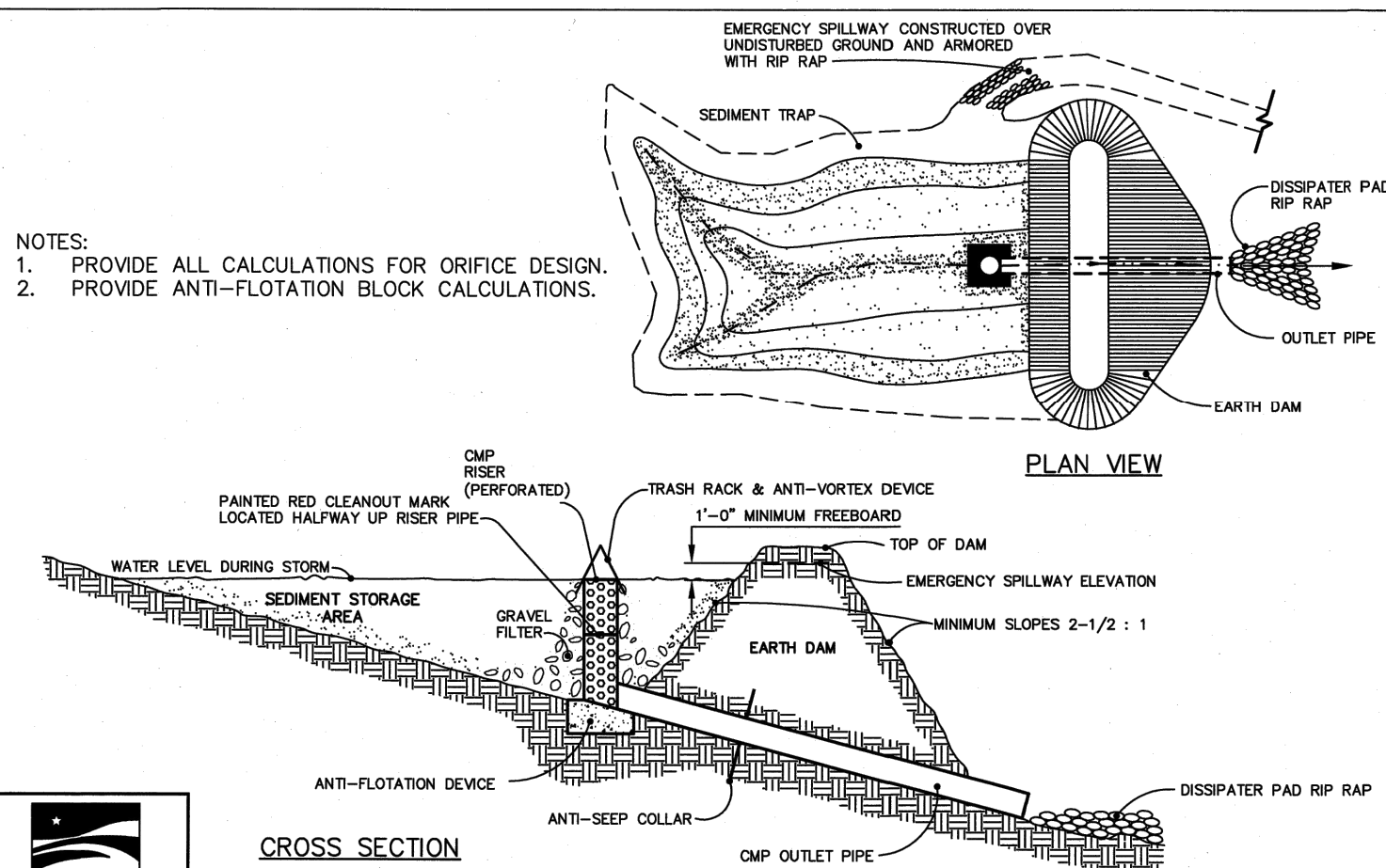
Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE



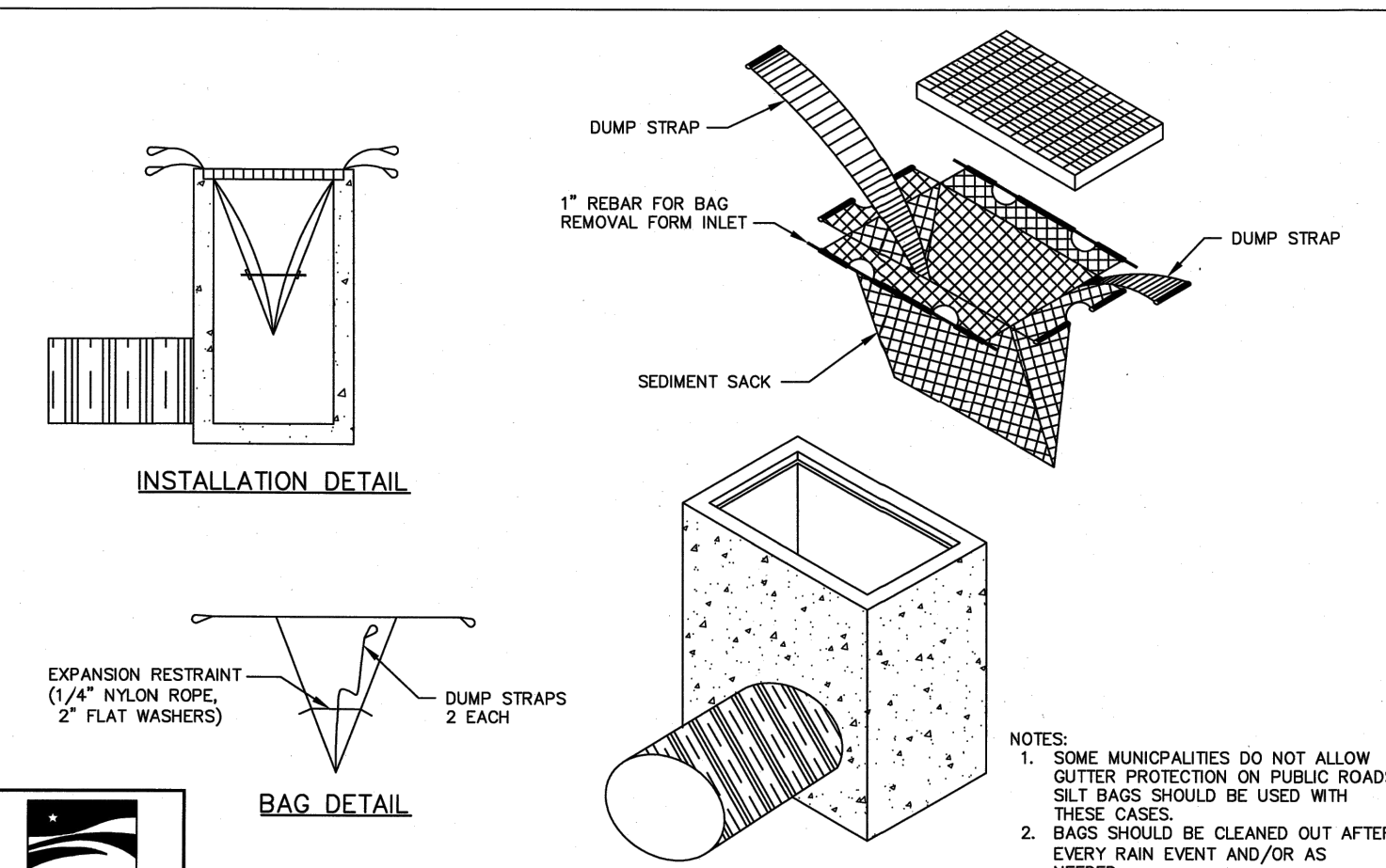
NOTES:
 - TO BE USED WHERE EXCESSIVE STORMWATER VELOCITIES PROHIBIT VEGETATIVE LININGS.
 - SIZE OF STONE MUST BE DETERMINED BY APPROPRIATE DESIGN PROCEDURE.
 - DIMENSIONS FOR d & W VARIES ACCORDING TO DESIGN.

STANDARD RIP-RAP LINED CHANNELS
 EFFECTIVE: 01/31/08



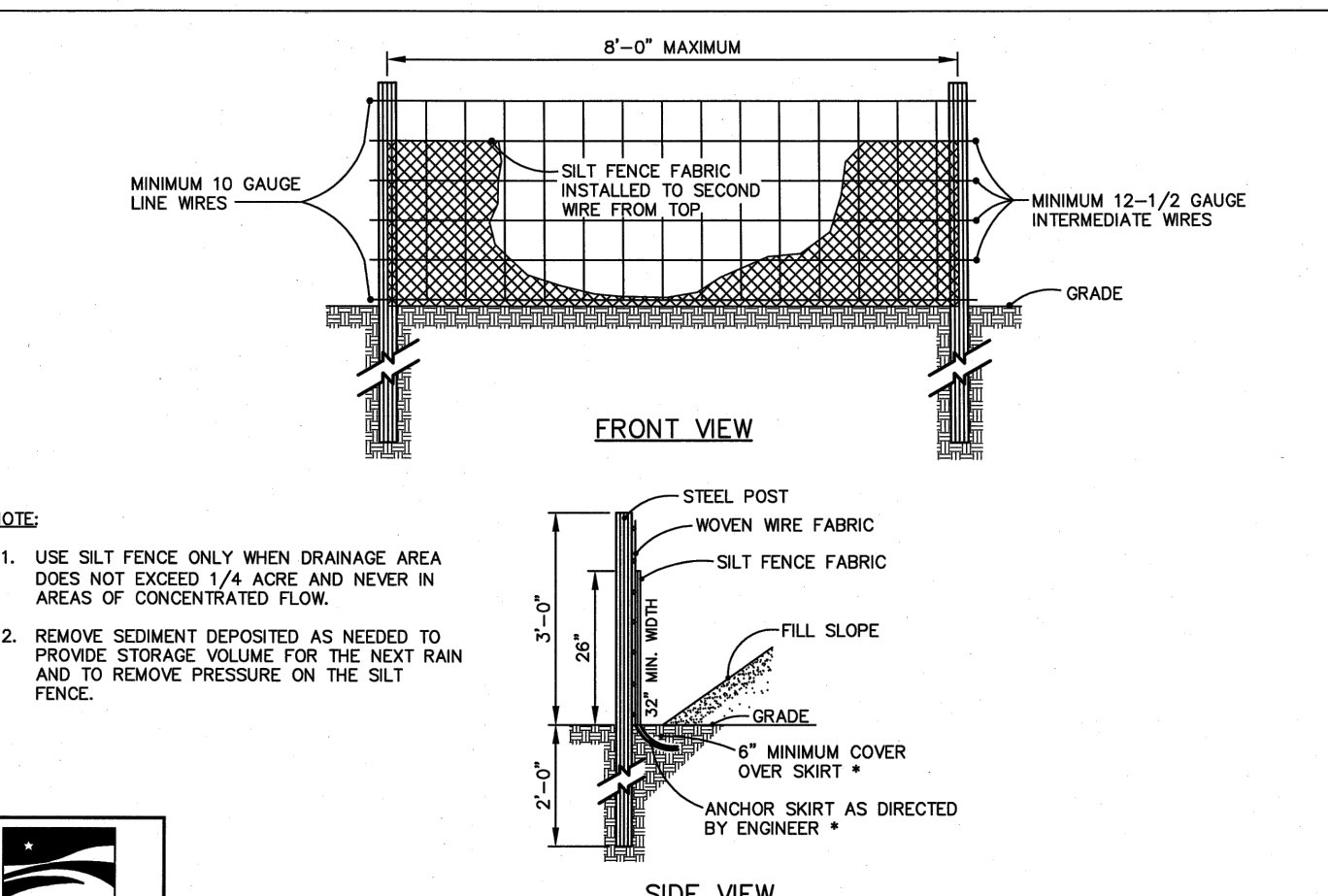
NOTES:
 1. PROVIDE ALL CALCULATIONS FOR ORIFICE DESIGN.
 2. PROVIDE ANTI-FLOTATION BLOCK CALCULATIONS.

STANDARD RISER-BARREL SEDIMENT BASIN
 EFFECTIVE: 01/31/08



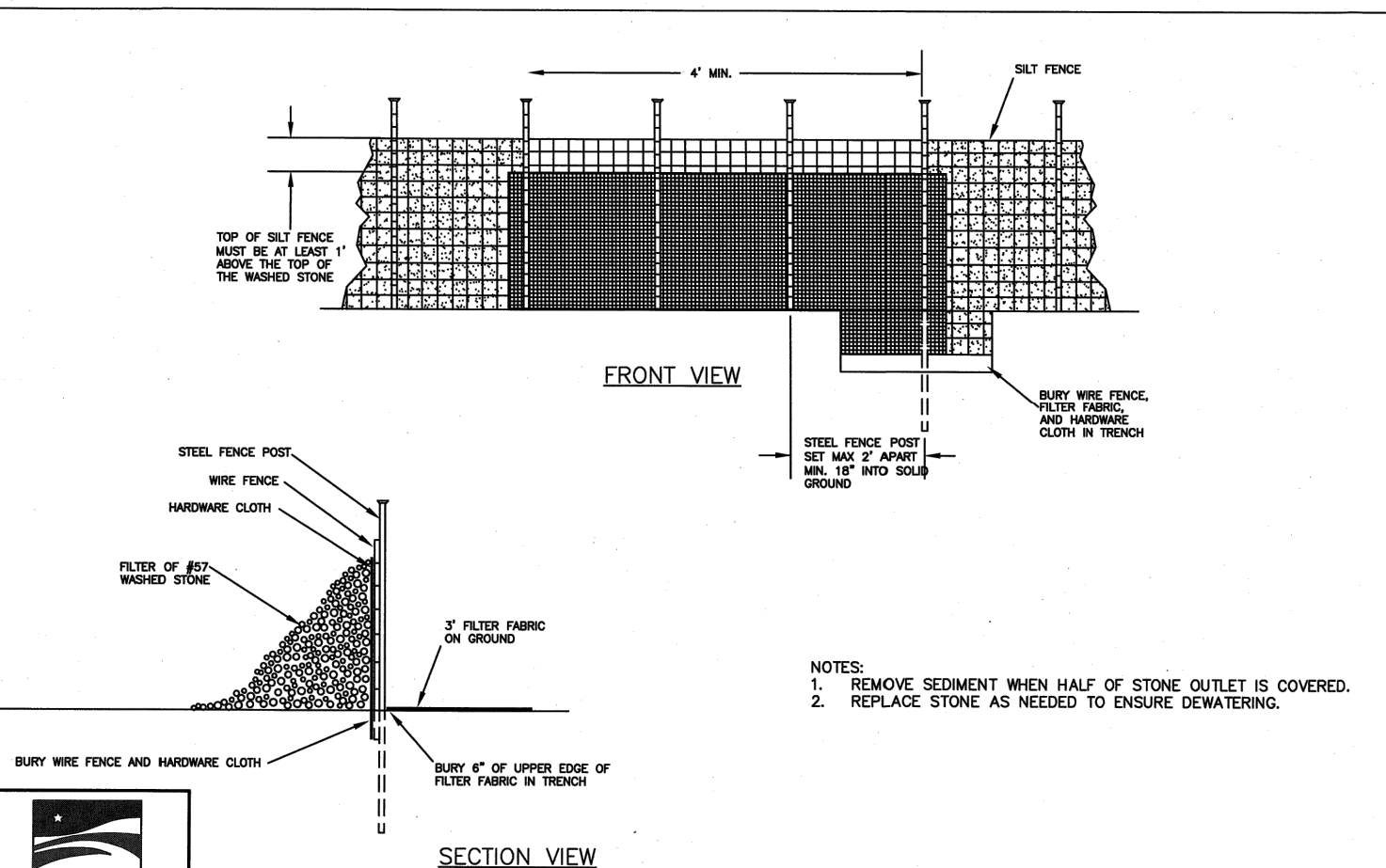
NOTES:
 1. SOME MUNICIPALITIES DO NOT ALLOW GUTTER PROTECTION ON PUBLIC ROADS. SILT BAGS SHOULD BE USED WITH THESE CASES.
 2. BAGS SHOULD BE CLEANED OUT AFTER EVERY RAIN EVENT AND/OR AS NEEDED.

STANDARD SILT BAG - INLET SEDIMENT CONTROL DEVICE
 EFFECTIVE: 01/31/08



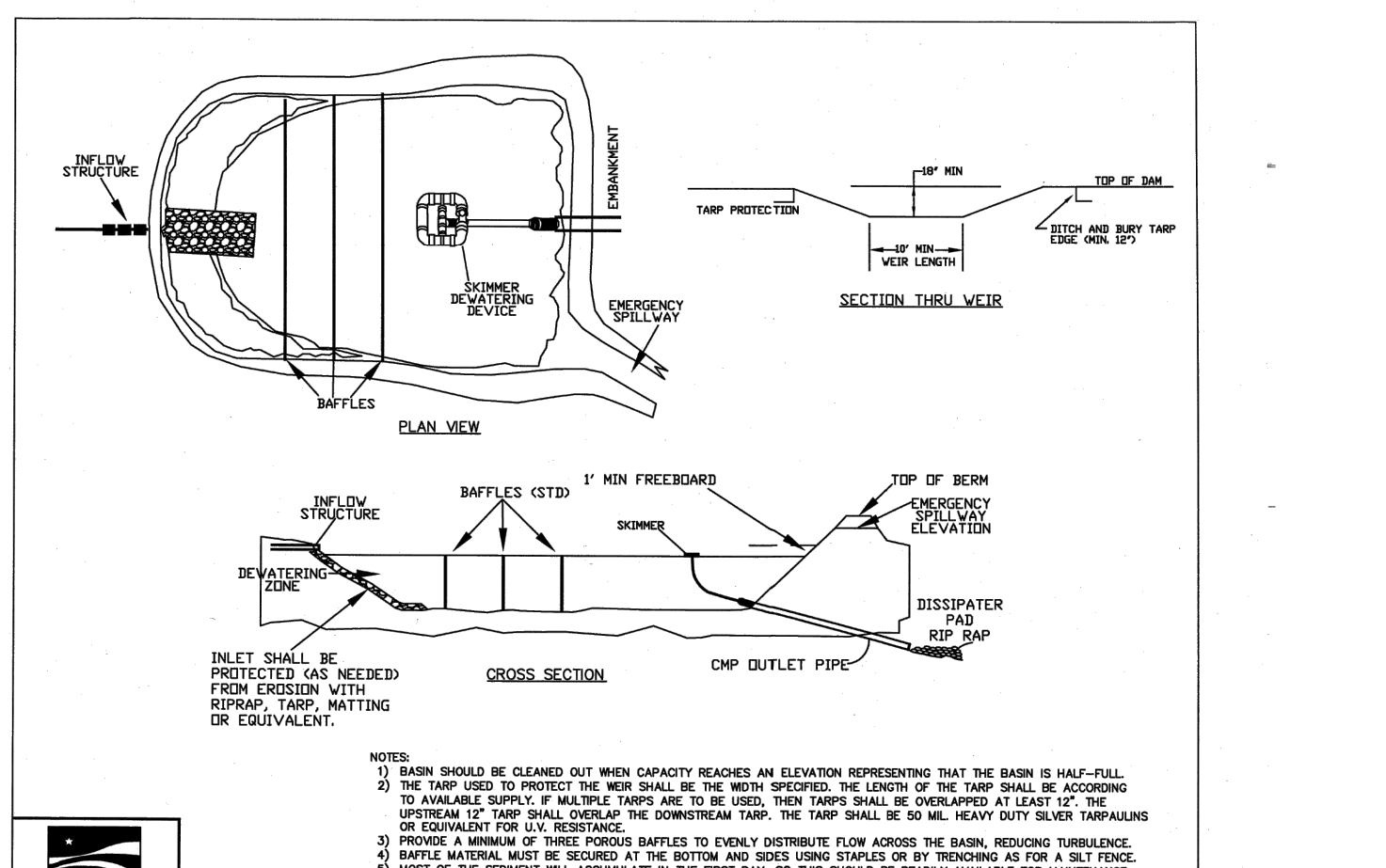
NOTE:
 1. USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.
 2. REMOVE SEDIMENT DEPOSITED AS NEEDED TO PROVIDE STORAGE VOLUME FOR THE NEXT RAIN AND TO REMOVE PRESSURE ON THE SILT FENCE.

STANDARD TEMPORARY SILT FENCE
 EFFECTIVE: 01/31/08



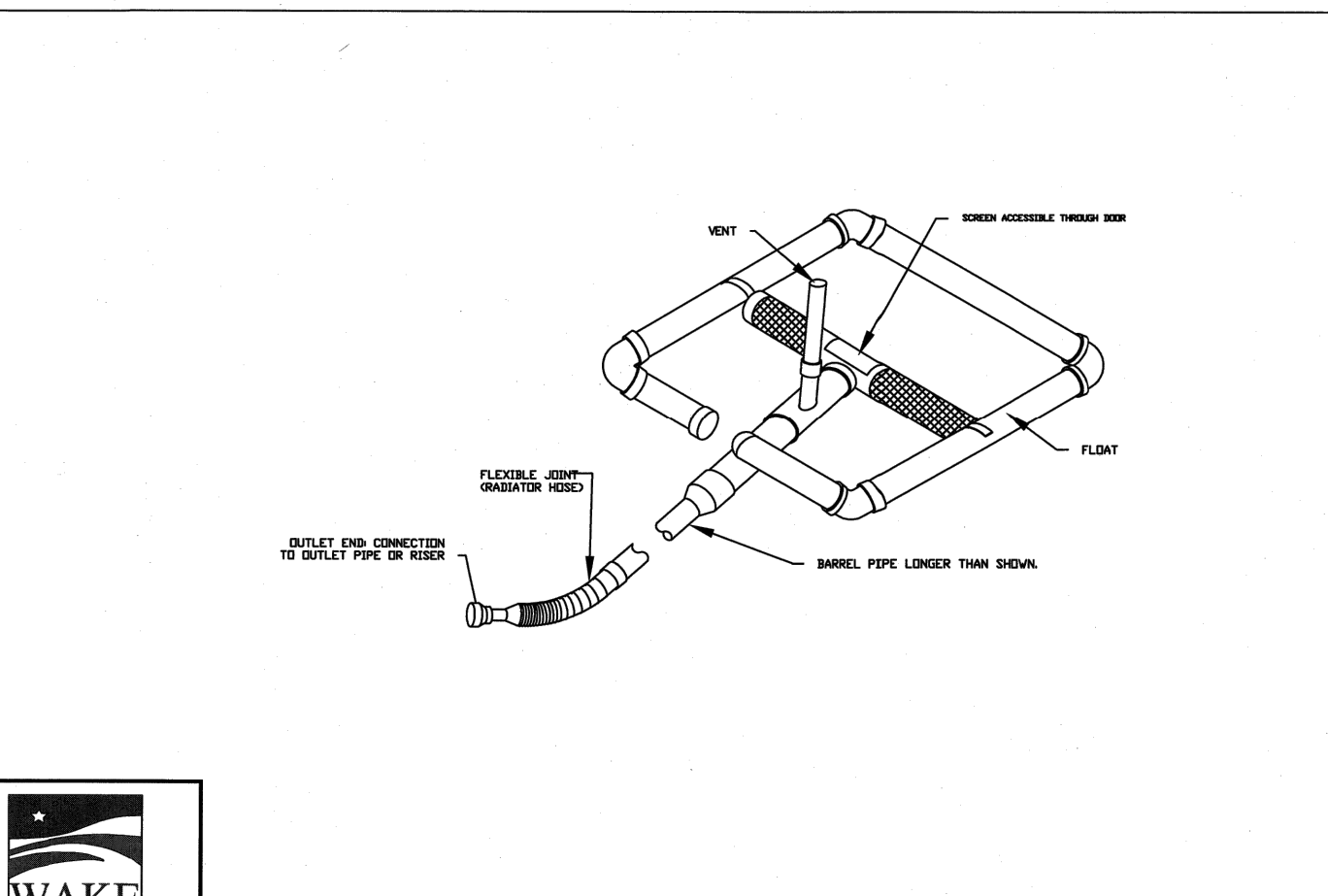
NOTES:
 1. REMOVE SEDIMENT WHEN HALF OF STONE OUTLET IS COVERED.
 2. REPLACE STONE AS NEEDED TO ENSURE DENATURING.

STANDARD SILT FENCE OUTLET
 EFFECTIVE: 01/31/08

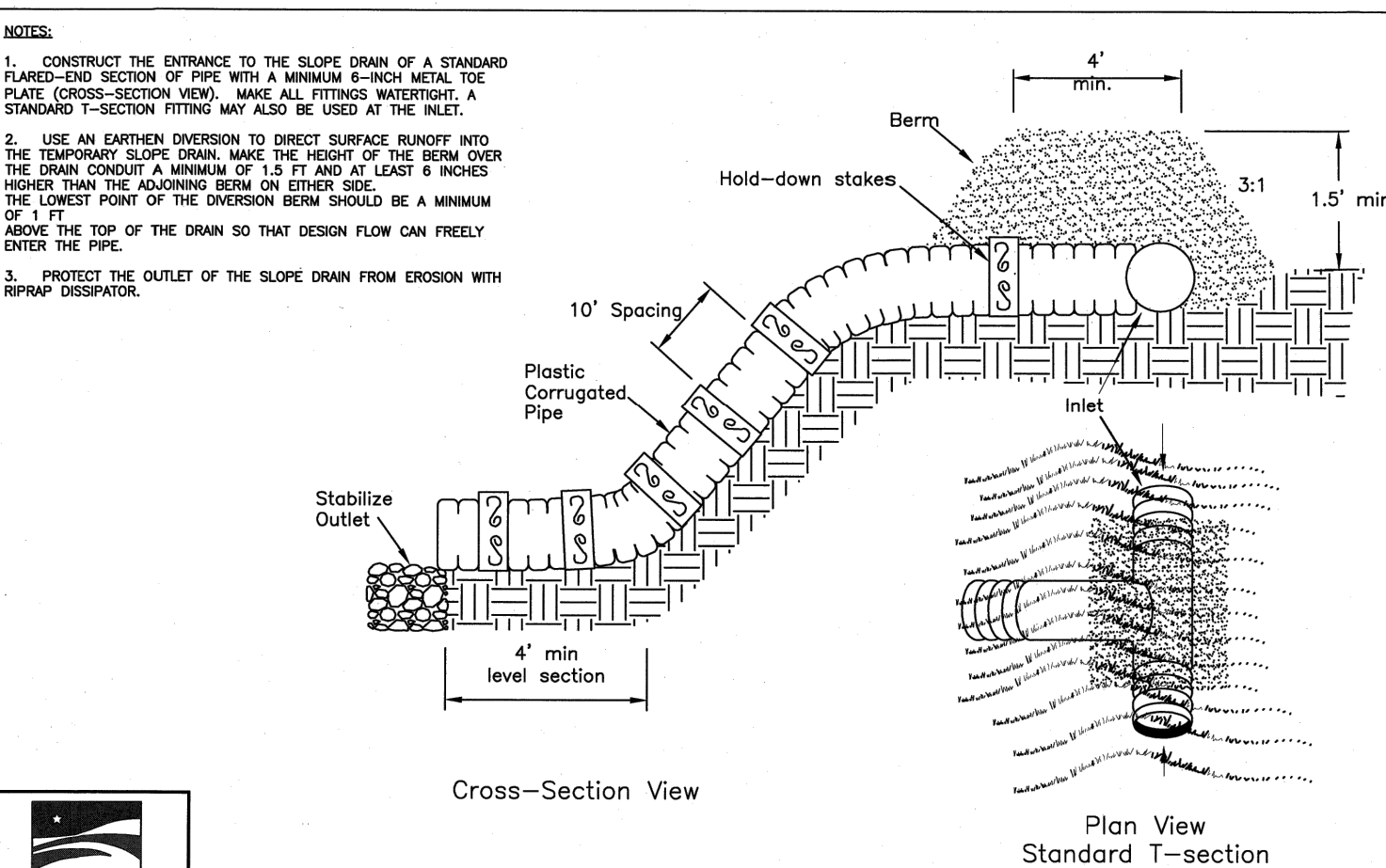


NOTES:
 1) BASIN SHOULD BE CLEANED OUT WHEN CAPACITY REACHES AN ELEVATION REPRESENTING THAT THE BASIN IS HALF-FULL.
 2) BASIN USED TO PREVENT THE MUD SHALL BE THE BEST QUALITY. THE LOCATION OF THE TAMP SHALL BE ACCORDING TO AVAILABLE SUPPLY. IF MULTIPLE TAMPS ARE TO BE USED, THEN TAMPS SHALL BE OVERLAPPED AT LEAST 1/2" THE UPSTREAM TAMP SHALL OVERLAP THE DOWNSTREAM TAMP. THE TAMP SHALL BE 30 MIL HEAVY DUTY SILT SUEDE THAMALS OR EQUIVALENT FOR UV RESISTANCE.
 3) PROVIDE A MINIMUM OF THREE FORCES BAFFLES TO ENSURE DISTRIBUTE FLOW ACROSS THE BASIN, REDUCING TURBULENCE.
 4) PROVIDE MATERIAL MUST BE STORED AT THE BOTTOM AND SHOULD BE COVERED BY PROTECTIVE PLASTIC OR OTHER MEANS.
 5) MOST OF THE SEDIMENT WILL ACCUMULATE IN THE FIRST BAY, SO THIS SHOULD BE READILY AVAILABLE FOR MAINTENANCE.
 6) DRAIN THE CONSTRUCTION POND OR THE PROJECT PERMANENT STORAGE POND AND ONLY WATER FROM THE TOP OF POND.
 7) POND SHALL NOT BE CONVERTED FOR STORMWATER USE UNTIL APPROVED BY ENVIRONMENTAL ENGINEER.

STANDARD SKIMMER BASIN
 EFFECTIVE: 01/31/08

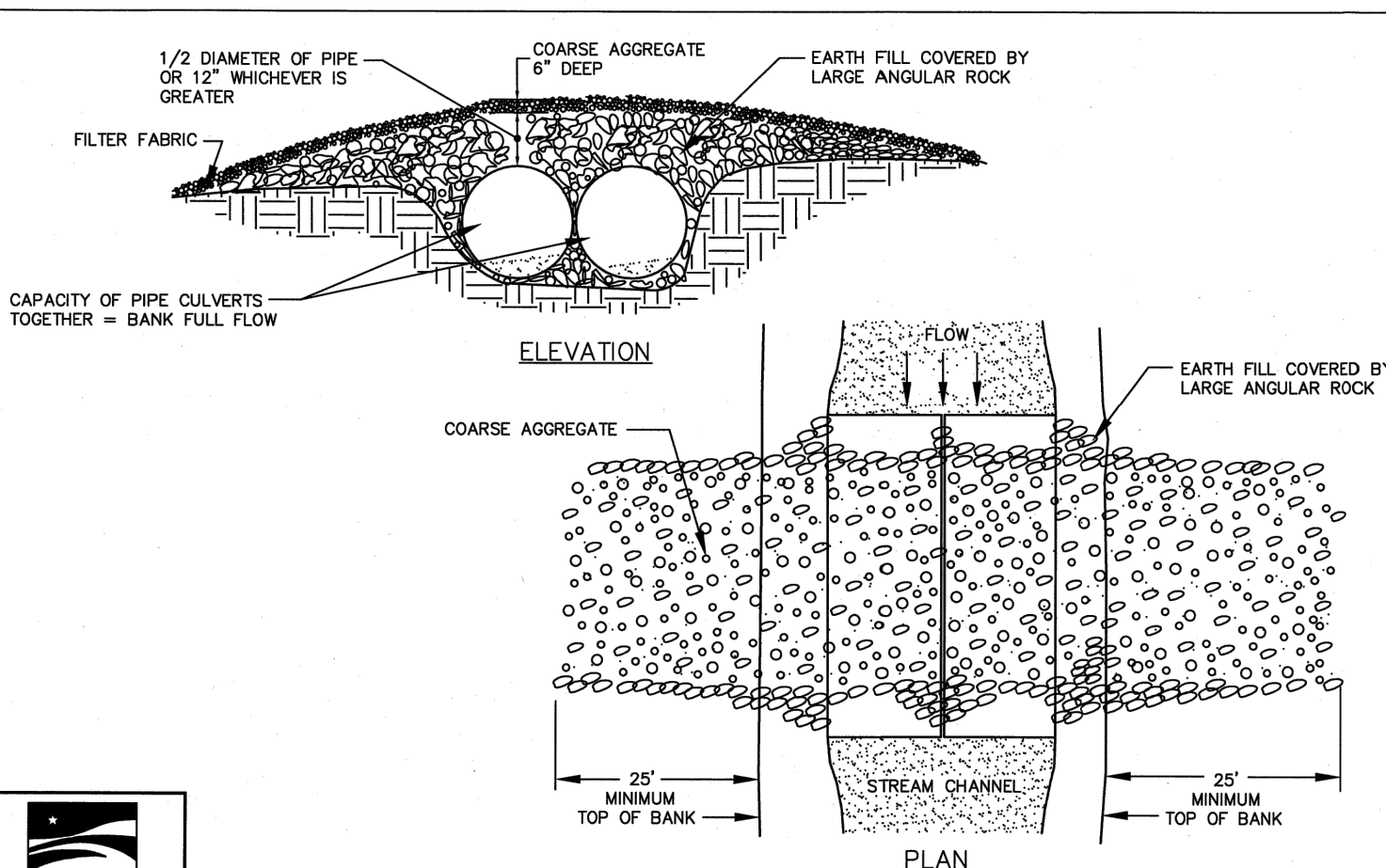


STANDARD SKIMMER DETAIL
 EFFECTIVE: 01/31/08

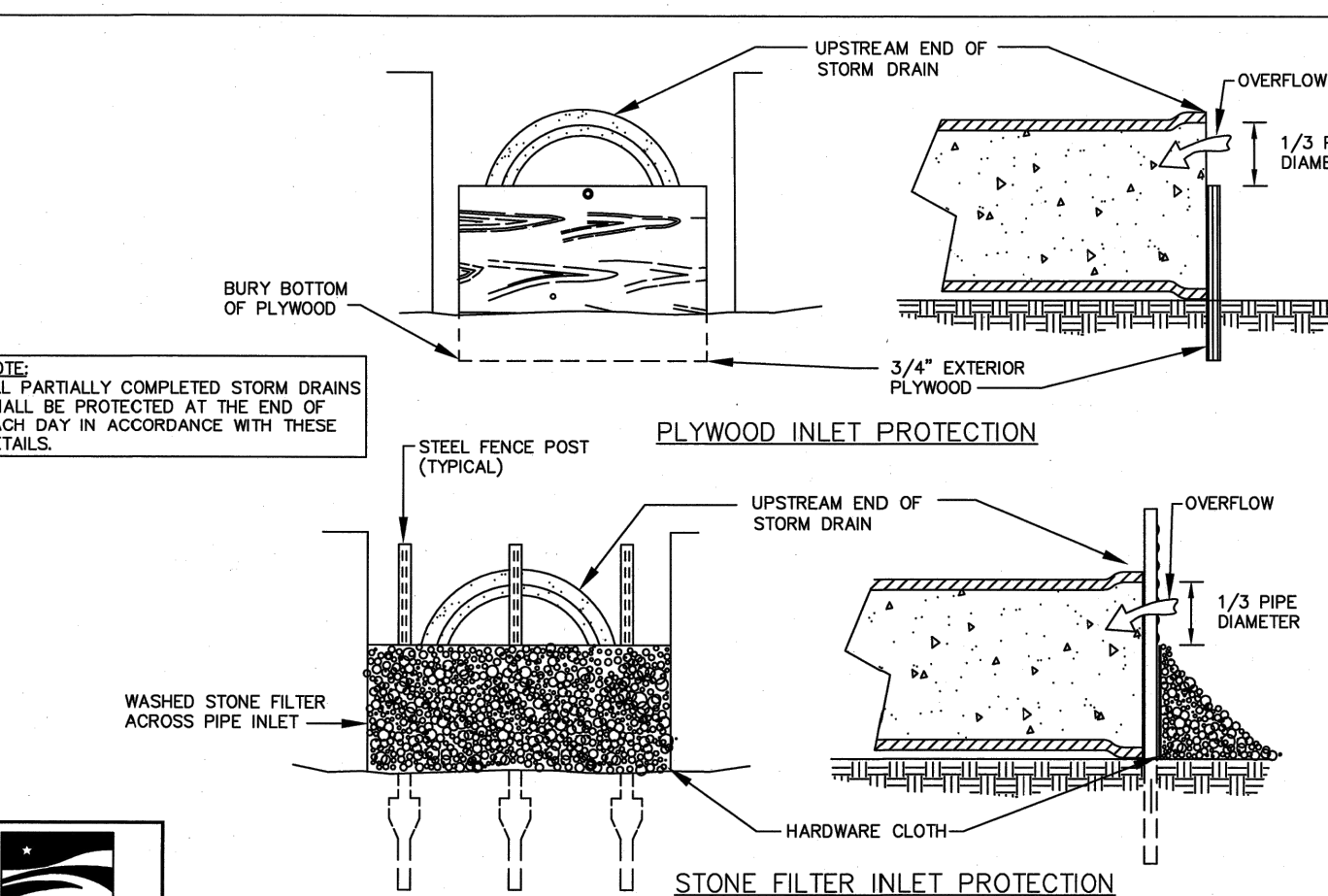


NOTES:
 1. CONSTRUCT THE ENTRANCE TO THE SLOPE DRAIN OF A STANDARD FLARED-END SECTION OF PIPE WITH A MINIMUM 6-INCH METAL TOE PLATE (CROSS-SECTION VIEW). MAKE ALL FITTINGS WATER-TIGHT. A STANDARD T-SECTION FITTING MAY ALSO BE USED AT THE INLET.
 2. USE AN EASTERN OVERSOW TO DIRECT SURFACE RUNOFF INTO THE TEMPORARY SLOPE DRAIN. MAKE THE HEIGHT OF THE BERM OVER THE DRAIN CONDUIT A MINIMUM OF 1.5 FT AND AT LEAST 6 INCHES HIGHER THAN THE ACCUMULATED SEDIMENT ON EITHER SIDE. THE LOWEST POINT OF THE OVERSOW BERM SHOULD BE A MINIMUM ABOVE THE TOP OF THE DRAIN SO THAT DESIGN FLOW CAN FREELY ENTER THE PIPE.
 3. PROTECT THE OUTLET OF THE SLOPE DRAIN FROM EROSION WITH RIPRAP COVERS.

STANDARD TEMPORARY SLOPE DRAIN
 EFFECTIVE: 01/31/08



STANDARD TEMPORARY STREAM CROSSING
 EFFECTIVE: 01/31/08

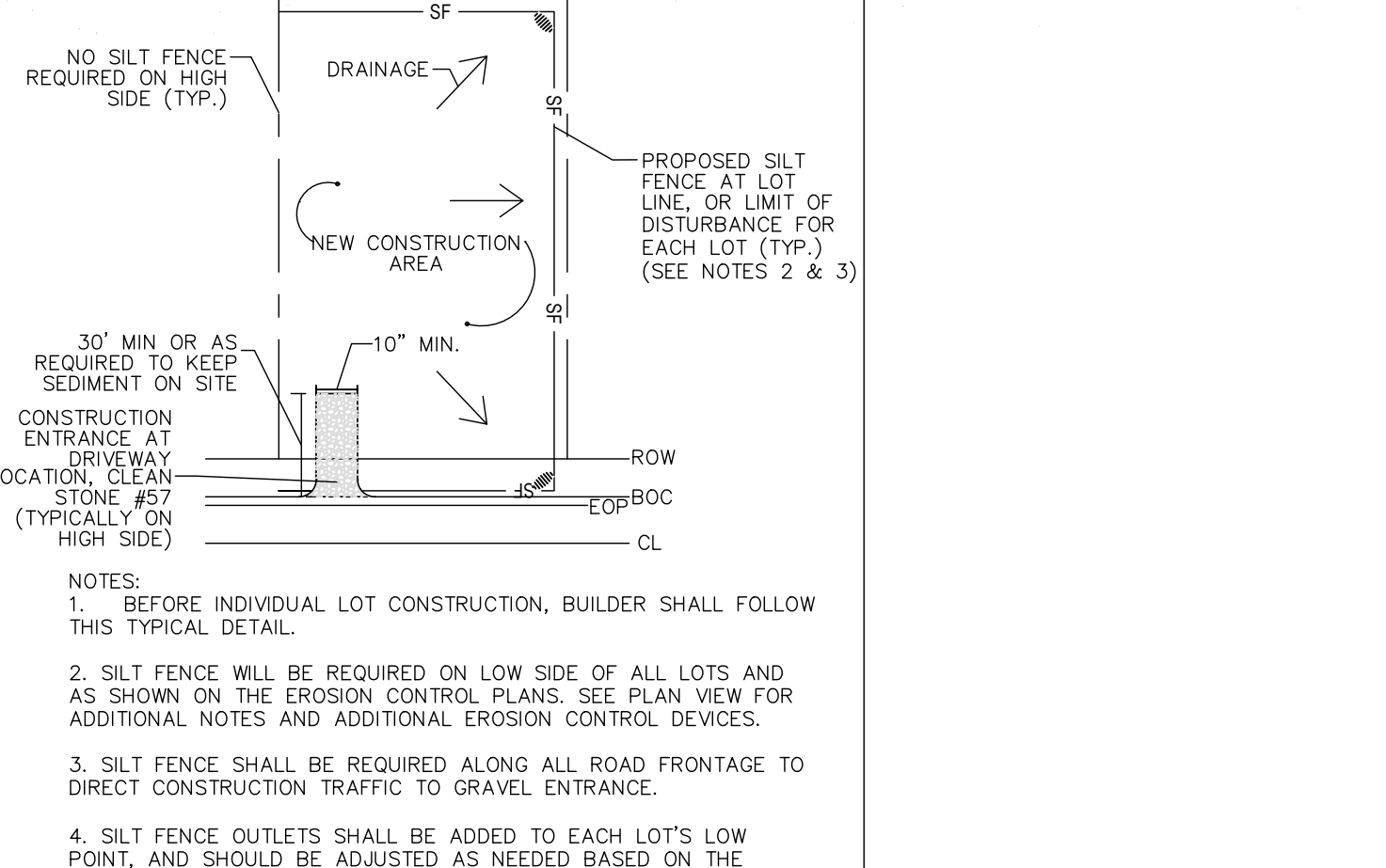


NOTE:
 ALL PARTIALLY COMPLETED STORM DRAINS SHALL BE PROTECTED AT THE END OF EACH DAY IN ACCORDANCE WITH THESE DETAILS.

STANDARD PIPE INLET PROTECTION (PLYWOOD & STONE)
 EFFECTIVE: 01/31/08

PERMANENT SEEDING - SHOULDERS, SIDE DITCHES, SLOPES (MAX 3:1)			
DATE	TYPE	PLANTING RATE	
AUG. 15 - NOV. 1	TALL FESCUE	200 LBS/ACRE	
NOV. 1 - MAR. 1	TALL FESCUE	200 LBS/ACRE	
MAR. 1 - APR. 15	AND ABRUZZI RYE (NURSE CROP)	25 LBS/ACRE	
APR. 15 - JUN. 30	TALL FESCUE	200 LBS/ACRE	
	HULLED COMMON BERMUDAGRASS	15 LBS/ACRE	
PERMANENT SEEDING - SLOPES (3:1 TO 2:1)			
AUG. 15-NOV. 1	TALL FESCUE	200 LBS/ACRE	
NOV. 1-MAR. 1	AND SERICEA LESPEDEZA (UNHULLED, UNSCARIFIED)	60 TO 70 LBS/ACRE	
	TALL FESCUE	200 LBS/ACRE	
	AND SERICEA LESPEDEZA (UNHULLED, UNSCARIFIED)	60 TO 70 LBS/ACRE	
	AND ABRUZZI RYE	25 LBS/ACRE	
MAR. 1-JUNE 1	TALL FESCUE	200 LBS/ACRE	
	AND SERICEA LESPEDEZA (SCARIFIED)	40 TO 50 LBS/ACRE	
MAR. 15-JUNE 30	WEEPING LOVEGRASS	10 LBS/ACRE	
	AND SERICEA LESPEDEZA (SCARIFIED)	40 TO 50 LBS/ACRE	
MAR. 15-JUNE 30	HULLED COMMON BERMUDAGRASS	15 LBS/ACRE	
	AND SERICEA LESPEDEZA (SCARIFIED)	40 TO 50 LBS/ACRE	
TEMPORARY SEEDING			
JUNE 1-SEPT. 1	TALL FESCUE	200 LBS/ACRE	
	AND BROWN TOP MILLET (NURSE CROP)	35 LBS/ACRE	
	OR SORGHUM-SUDAN HYBRIDS (NURSE CROP)	30 LBS/ACRE	

CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENIED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS. OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.
 *NURSE CROP/TEMPORARY - RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING. OTHERWISE FESCUE MAY BE SHADDED OUT.
 MULCH WITH WHEAT STRAW AT 2,000 LBS/AC.



NOTES:
 1. BEFORE INDIVIDUAL LOT CONSTRUCTION, BUILDER SHALL FOLLOW THIS TYPICAL DETAIL.
 2. SILT FENCE WILL BE REQUIRED ON LOW SIDE OF ALL LOTS AND AS SHOWN ON THE EROSION CONTROL PLANS. SEE PLAN VIEW FOR ADDITIONAL NOTES AND ADDITIONAL EROSION CONTROL DEVICES.
 3. SILT FENCE SHALL BE REQUIRED ALONG ALL ROAD FRONTAGE TO DIRECT CONSTRUCTION TRAFFIC TO GRAVEL ENTRANCE.
 4. SILT FENCE OUTLETS SHALL BE ADDED TO EACH LOT'S LOW POINT, AND SHOULD BE ADJUSTED AS NEEDED BASED ON THE ACTUAL LOT DRAINAGE PATTERN AND TOPOGRAPHY.

TYPICAL EROSION CONTROL FOR INDIVIDUAL LOTS
 EFFECTIVE: 01/31/08



PAVEMENT MARKING LEGEND

Symbol	Description
(A)	4" WHITE LANE LINE
(C)	4" WIDE DOUBLE YELLOW SOLID LINE
(D)	24" WHITE STOP BAR (MIN 4" BEHIND CROSSWALK)
(E)	8" WHITE TRANSVERSE LINES
(G)	4" WHITE PARKING SPACE LINE

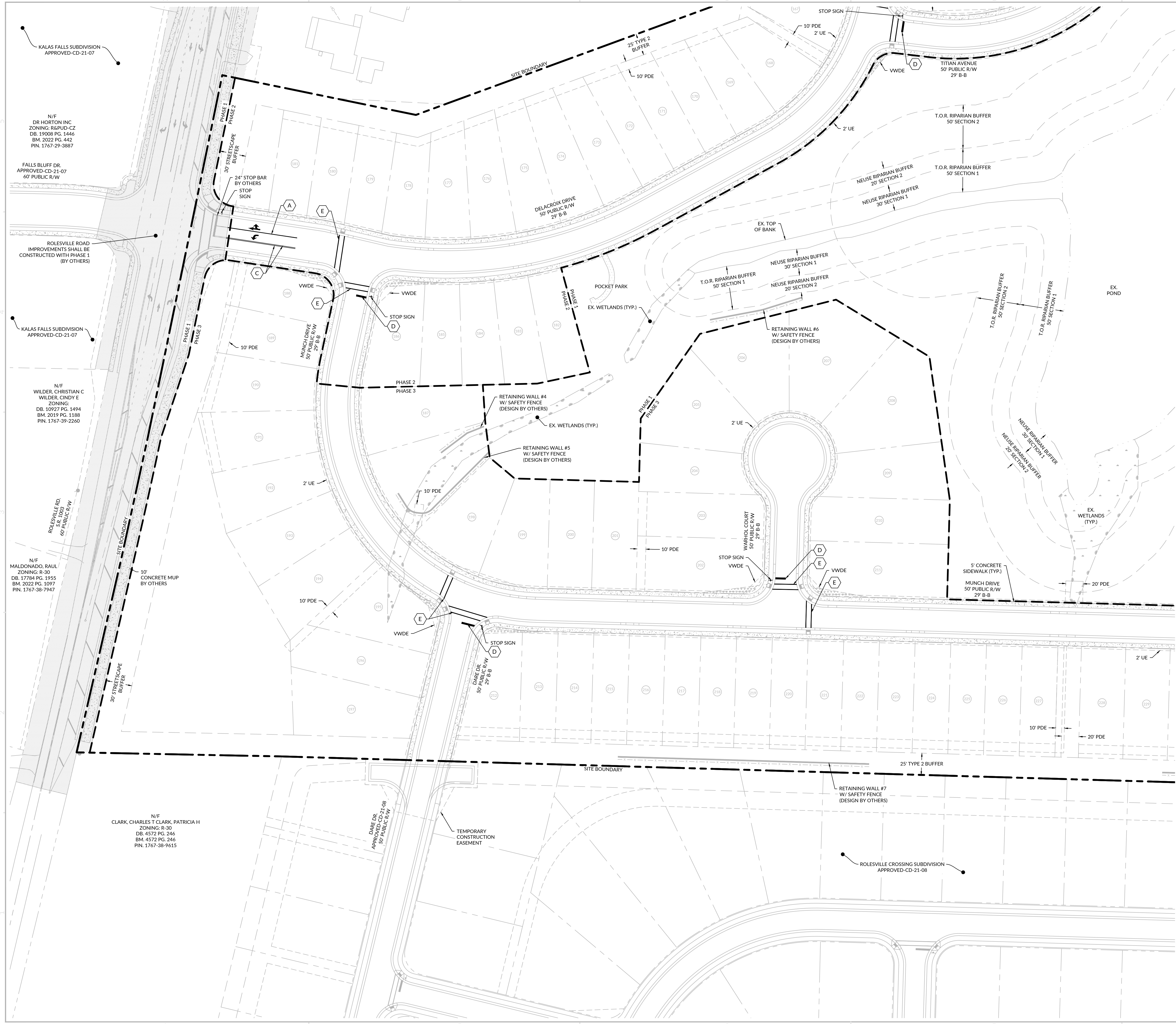
STRIPING NOTES:

- ALL MARKINGS AND SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH MUTCD STANDARDS, INCLUDING COLOR, LETTER HEIGHT, AND LETTER CASE OF THE STREET NAME SIGNS.
- ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
- ANY EXISTING PAVEMENT STRIPING THAT IS IN CONFLICT WITH THE PROPOSED STRIPING SHOWN ON THIS PLAN SHALL BE REMOVED.

KEY MAP
NOT TO SCALE



J:\2024\04\15\Bldg_WithersRavenel\Assemblies\CID\Drawings_SiteConstruction\CID-11-02_SIGNAGE & PAVEMENT MARKINGS PLAN.dwg Thursday, January 2, 2025 2:45:14 PM - TCC:CK



KALAS FALLS SUBDIVISION
APPROVED-CD-21-07

N/F
DR HORTON INC
ZONING: R&PD-CZ
DB. 19008 PG. 1446
BM. 2022 PG. 442
PIN. 1767-29-3887

FALLS BLUFF DR.
APPROVED-CD-21-07
60' PUBLIC R/W

ROLESVILLE ROAD
IMPROVEMENTS SHALL BE
CONSTRUCTED WITH PHASE 1
(BY OTHERS)

KALAS FALLS SUBDIVISION
APPROVED-CD-21-07

N/F
WILDER, CHRISTIAN C
WILDER, CINDY E
ZONING:
DB. 10927 PG. 1494
BM. 2019 PG. 1188
PIN. 1767-39-2260

ROLESVILLE RD
S.R. 1003
60' PUBLIC R/W

N/F
MALDONADO, RAUL
ZONING: R-30
DB. 17704 PG. 1935
BM. 2022 PG. 1097
PIN. 1767-38-7947

N/F
CLARK, CHARLES T, CLARK, PATRICIA H
ZONING: R-30
DB. 4572 PG. 246
BM. 4572 PG. 246
PIN. 1767-38-9615

DARE DR
APPROVED-CD-21-08
50' PUBLIC R/W

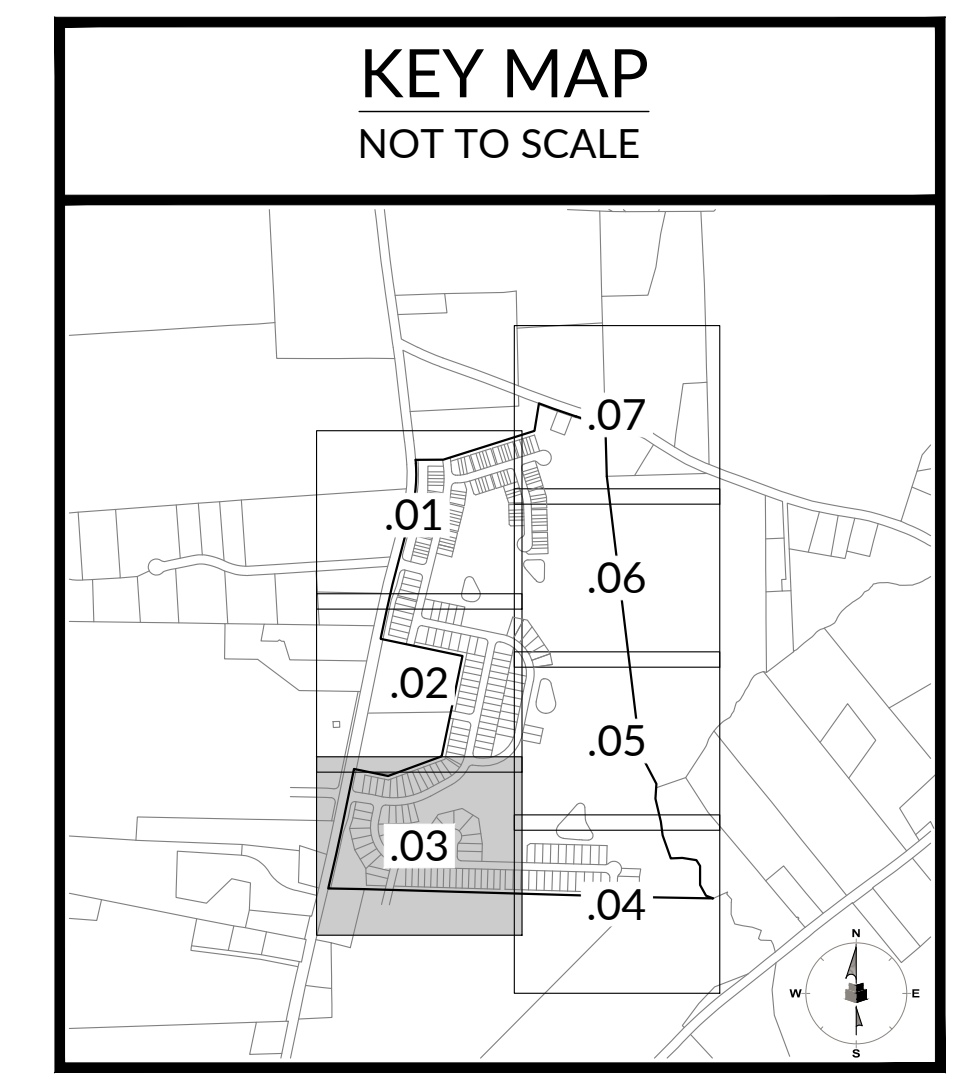
ROLESVILLE CROSSING SUBDIVISION
APPROVED-CD-21-08

PAVEMENT MARKING LEGEND

Symbol	Description
	PAVEMENT MARKING SYMBOLS
	4" WHITE LANE LINE
	4" WIDE DOUBLE YELLOW SOLID LINE
	24" WHITE STOP BAR (MIN 4" BEHIND CROSSWALK)
	8" WHITE TRANSVERSE LINES
	4" WHITE PARKING SPACE LINE

STRIPING NOTES:

- ALL MARKINGS AND SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH MUTCD STANDARDS, INCLUDING COLOR, LETTER HEIGHT, AND LETTER CASE OF THE STREET NAME SIGNS.
- ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
- ANY EXISTING PAVEMENT STRIPING THAT IS IN CONFLICT WITH THE PROPOSED STRIPING SHOWN ON THIS PLAN SHALL BE REMOVED.



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PAVEMENT MARKING LEGEND

PAVEMENT MARKING SYMBOLS	
(A)	4" WHITE LANE LINE
(C)	4" WIDE DOUBLE YELLOW SOLID LINE
(D)	24" WHITE STOP BAR (MIN 4' BEHIND CROSSWALK)
(E)	8" WHITE TRANSVERSE LINES
(G)	4" WHITE PARKING SPACE LINE

STRIPING NOTES:

- ALL MARKINGS AND SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH MUTCD STANDARDS, INCLUDING COLOR, LETTER HEIGHT, AND LETTER CASE OF THE STREET NAME SIGNS.
- ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
- ANY EXISTING PAVEMENT STRIPING THAT IS IN CONFLICT WITH THE PROPOSED STRIPING SHOWN ON THIS PLAN SHALL BE REMOVED.

KEY MAP NOT TO SCALE



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N/F
 RICHARDS, BARBARA ANN JONES
 ZONING: R-30
 DB: 1730 PG. 526
 PIN: 1768-60-2816

PAVEMENT MARKING LEGEND

Symbol	Description
(A)	4" WHITE LANE LINE
(C)	4" WIDE DOUBLE YELLOW SOLID LINE
(D)	24" WHITE STOP BAR (MIN 4' BEHIND CROSSWALK)
(E)	8" WHITE TRANSVERSE LINES
(G)	4" WHITE PARKING SPACE LINE

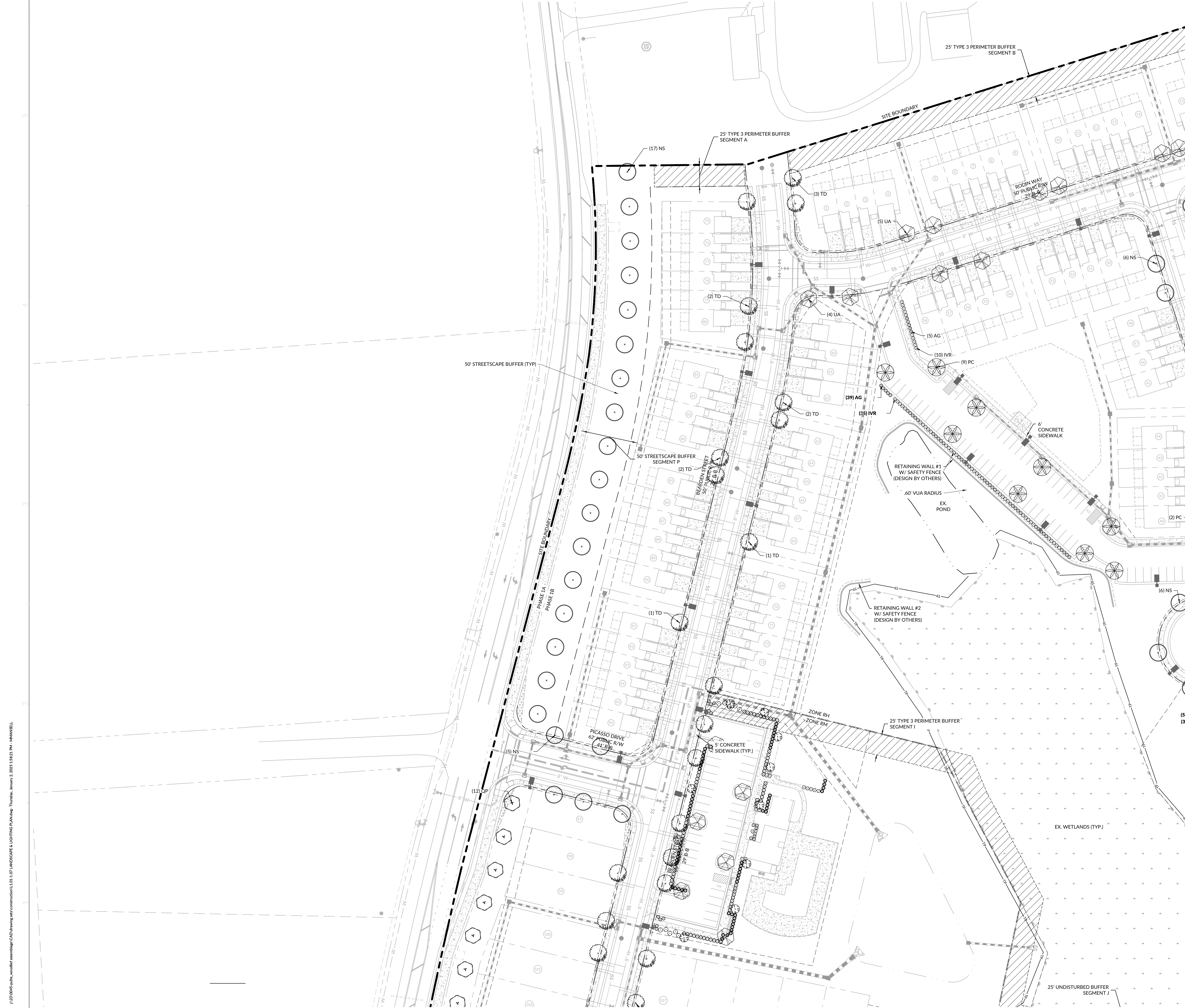
STRIPING NOTES:

- ALL MARKINGS AND SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH MUTCD STANDARDS, INCLUDING COLOR, LETTER HEIGHT, AND LETTER CASE OF THE STREET NAME SIGNS.
- ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
- ANY EXISTING PAVEMENT STRIPING THAT IS IN CONFLICT WITH THE PROPOSED STRIPING SHOWN ON THIS PLAN SHALL BE REMOVED.

KEY MAP
 NOT TO SCALE



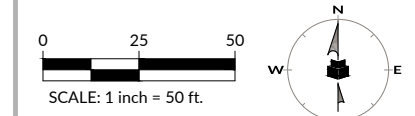
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PLANT LEGEND

SYMBOL	CODE	BOTANICAL NAME
TREES		
	AR	Acer rubrum
	CC	Cercis canadensis
	CV	Chionanthus virginicus
	NS	Nyssa sylvatica
	PC	Pistacia chinensis
	PO	Platanus occidentalis
	QP	Quercus phellos
	TD	Taxodium distichum
	UA	Ulmus americana
SHRUBS		
	AG	Abelia x grandiflora
	HQ	Hydrangea quercifolia
	IC	Ilex cornuta 'Needlepoint'
	IG	Ilex glabra 'Shamrock'
	IVO	Ilex vomitoria
	IVR	Itea virginica
GROUND COVERS		
	POLL	Pollinator Mix

PRELIMINARY
 NOT APPROVED FOR
 CONSTRUCTION
 NIEL B. WHITNEY

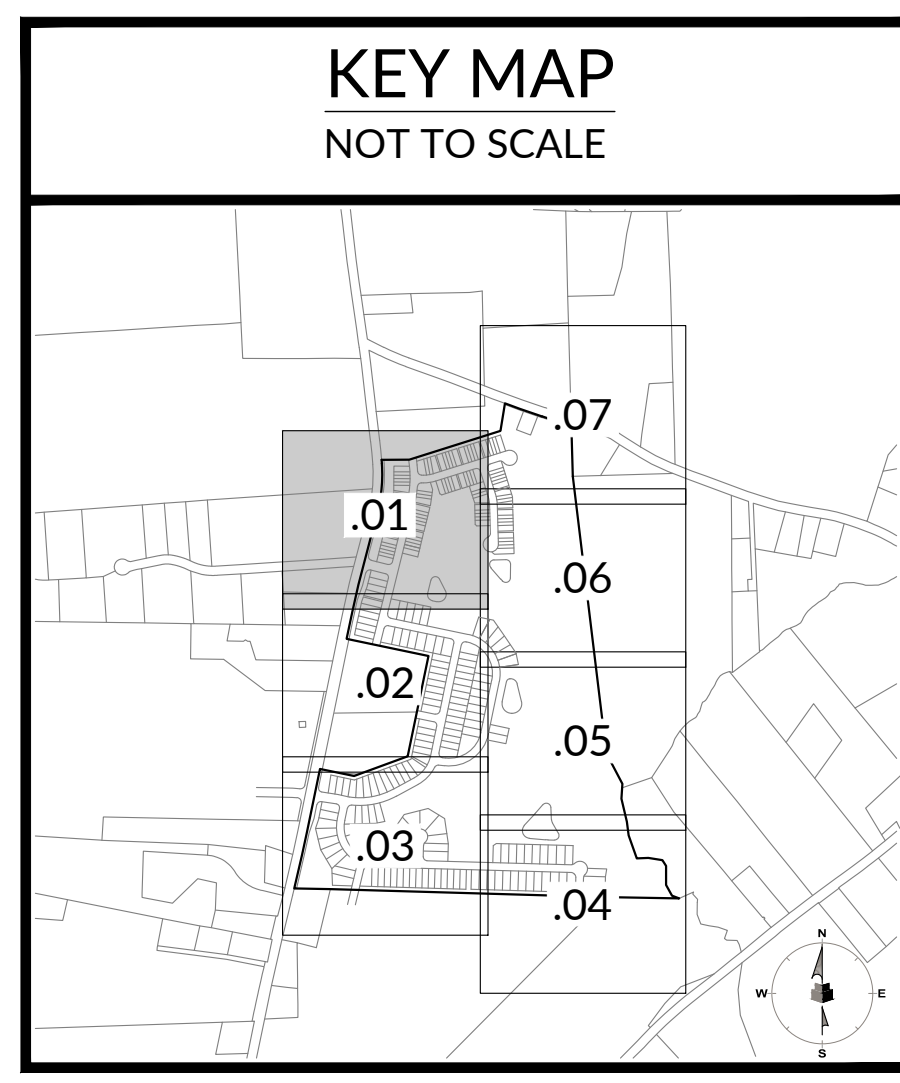


INITIAL PLAN DATE: 11/01/2024
 REVISIONS:
 1 - 01/02/2025
 REVISED PER REVIEW COMMENTS

WR JOB NUMBER: 23-0045
 DRN: WR DGN: WR CKD: WR

LANDSCAPE PLAN

L1.01



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PLANT LEGEND

SYMBOL	CODE	BOTANICAL NAME
TREES		
	AR	Acer rubrum
	CC	Cercis canadensis
	CV	Chionanthus virginicus
	NS	Nyssa sylvatica
	PC	Pistacia chinensis
	PO	Platanus occidentalis
	QP	Quercus phellos
	TD	Taxodium distichum
	UA	Ulmus americana
SHRUBS		
	AG	Abelia x grandiflora
	HQ	Hydrangea quercifolia
	IC	Ilex cornuta 'Needlepoint'
	IG	Ilex glabra 'Shamrock'
	IVO	Ilex vomitoria
	IVR	Itea virginica
GROUND COVERS		
	POLL	Pollinator Mix

CONSTRUCTION INFRASTRUCTURE DRAWINGS
BROADMOOR
 CID-24-06

ROLESVILLE ROAD | ROLESVILLE, NC 27587 | WAKE COUNTY

PRELIMINARY
 NOT APPROVED FOR
 CONSTRUCTION

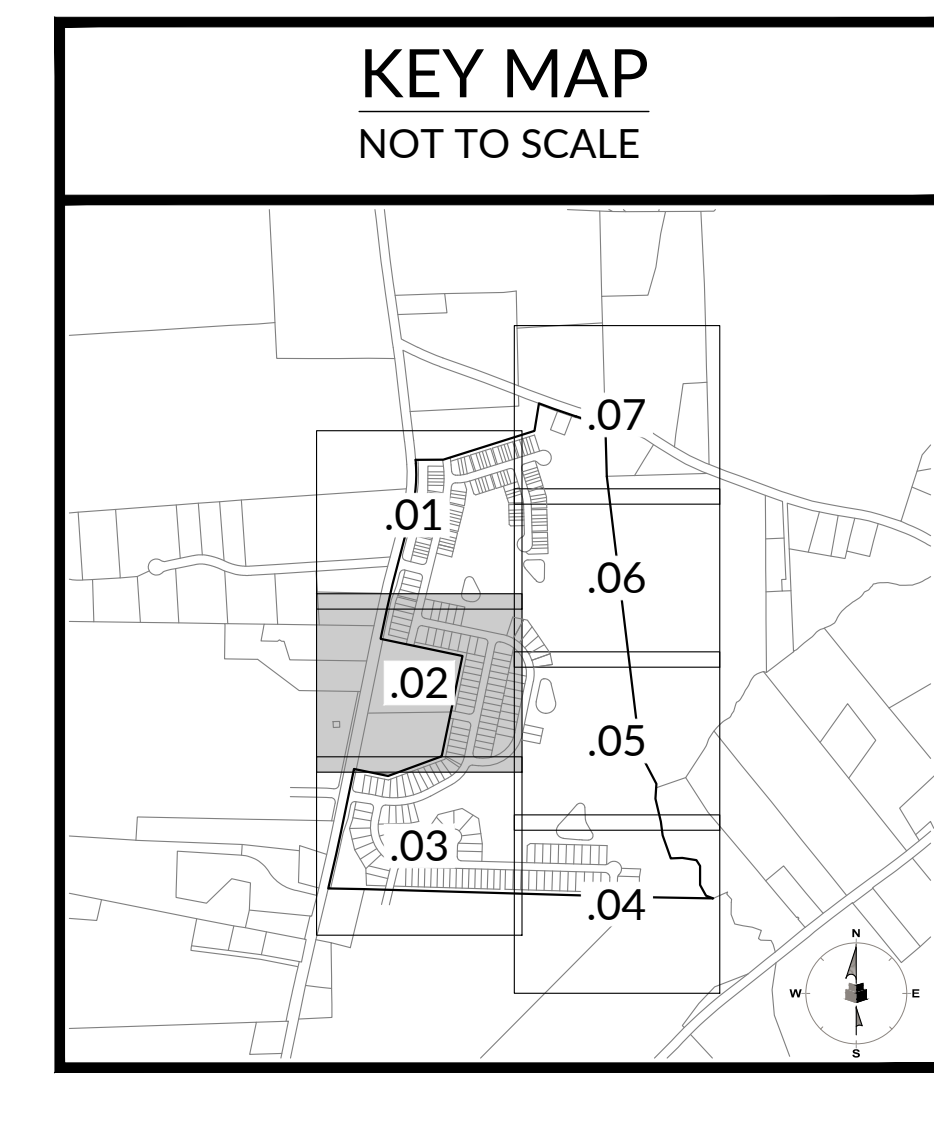
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INITIAL PLAN DATE: 11/01/2024
 REVISIONS:
 1 - 01/02/2025
 REVISED PER REVIEW COMMENTS

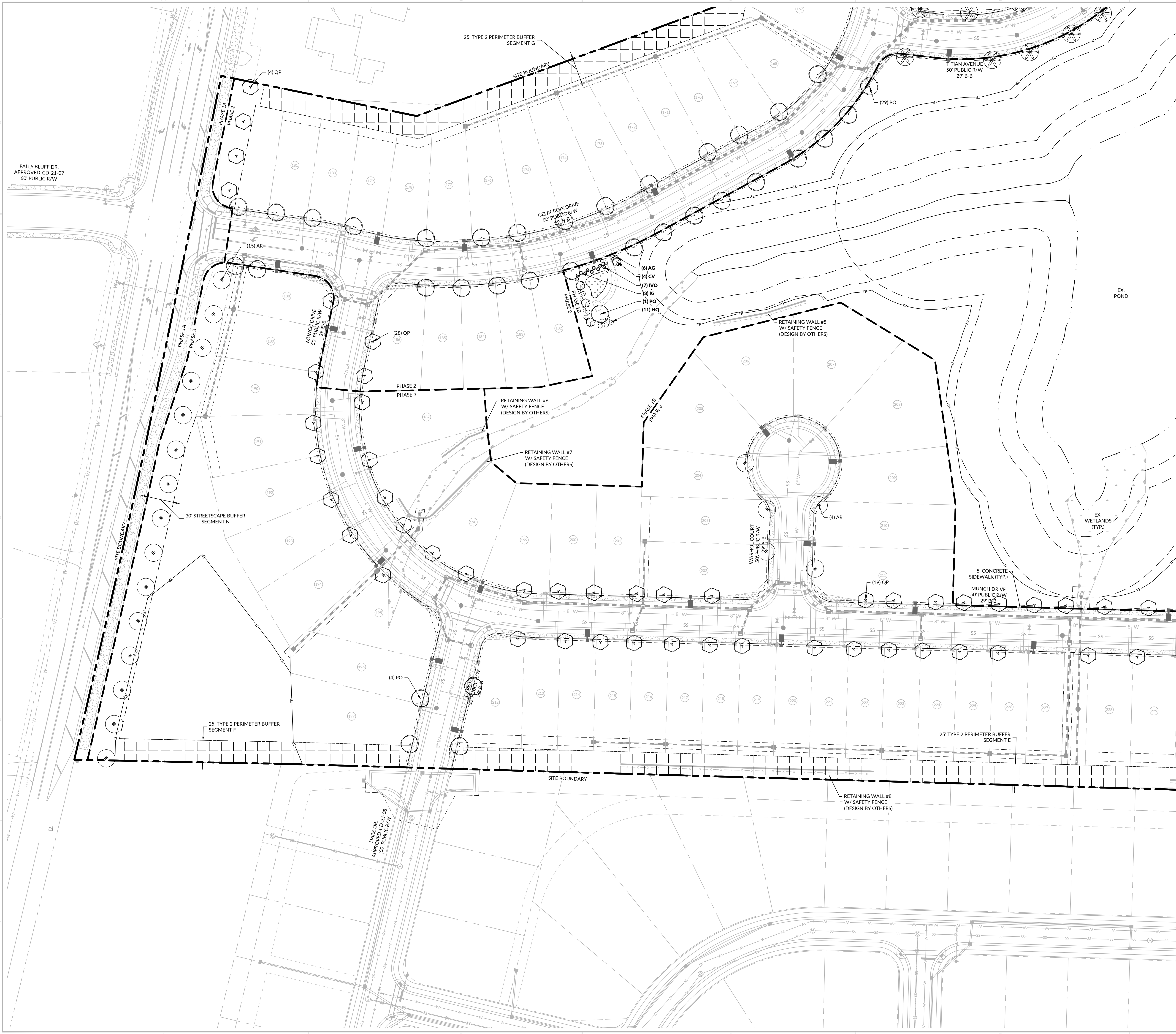
WR JOB NUMBER 23-0045
 DRN: WR DGN: WR CKD: WR

LANDSCAPE PLAN

L1.02

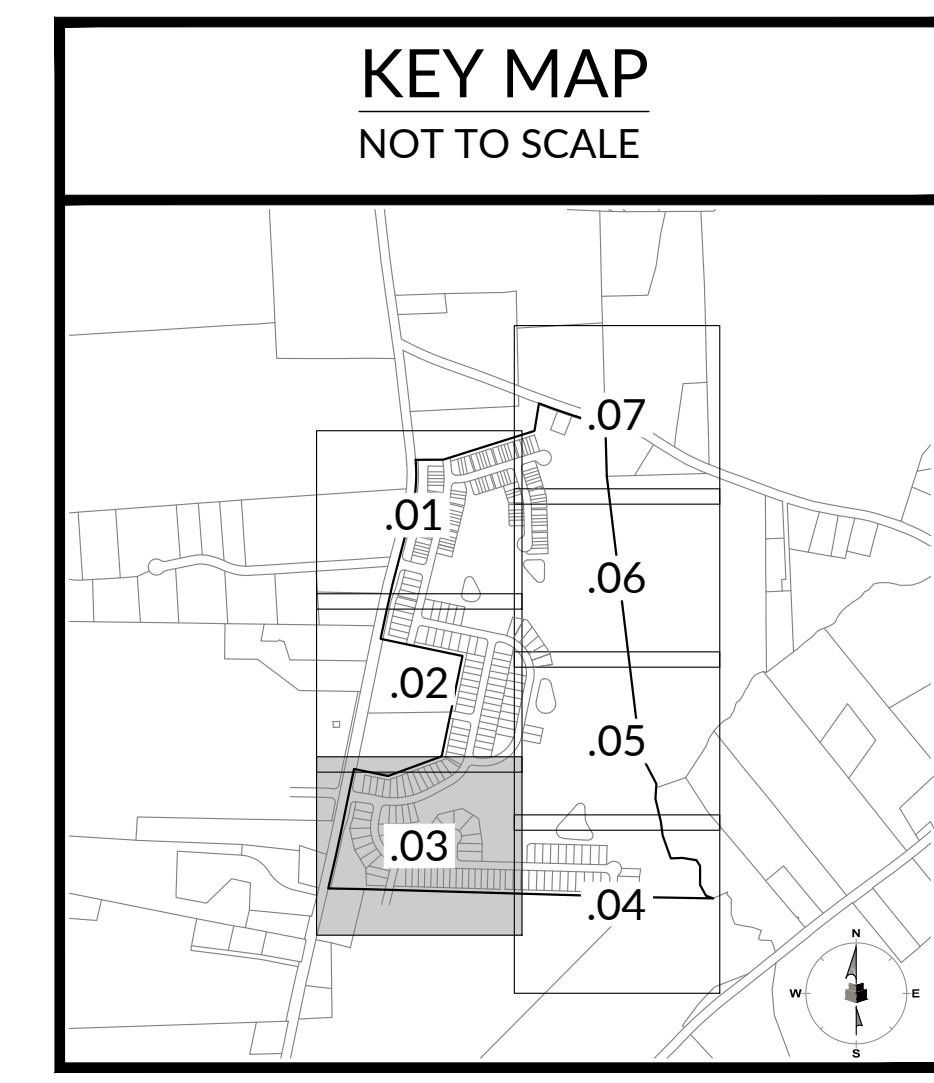


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PLANT LEGEND

SYMBOL	CODE	BOTANICAL NAME
TREES		
	AR	Acer rubrum
	CC	Cercis canadensis
	CV	Chionanthus virginicus
	NS	Nyssa sylvatica
	PC	Pistacia chinensis
	PO	Platanus occidentalis
	QP	Quercus phellos
	TD	Taxodium distichum
	UA	Ulmus americana
SHRUBS		
	AG	Abelia x grandiflora
	HQ	Hydrangea quercifolia
	IC	Ilex cornuta 'Needlepoint'
	IG	Ilex glabra 'Shamrock'
	IVO	Ilex vomitoria
	IVR	Itea virginica
GROUND COVERS		
	POLL	Pollinator Mix



CONSTRUCTION INFRASTRUCTURE DRAWINGS
BROADMOOR
CID-24-06

ROLESVILLE ROAD | ROLESVILLE, NC 27587 | WAKE COUNTY

1225 CRESCENT GREEN DRIVE, SUITE 200, CARY, NC 27518

167 E. Chatham St. | Suite 2101 | Cary, NC 27511
License #: F-1479 | T: 919.238.0330 | www.withersravenel.com

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CONSTRUCTION

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SCALE: 1 inch = 50 ft.

INITIAL PLAN DATE: 11/01/2024
REVISIONS:
1 - 01/02/2025
REVISED PER REVIEW COMMENTS

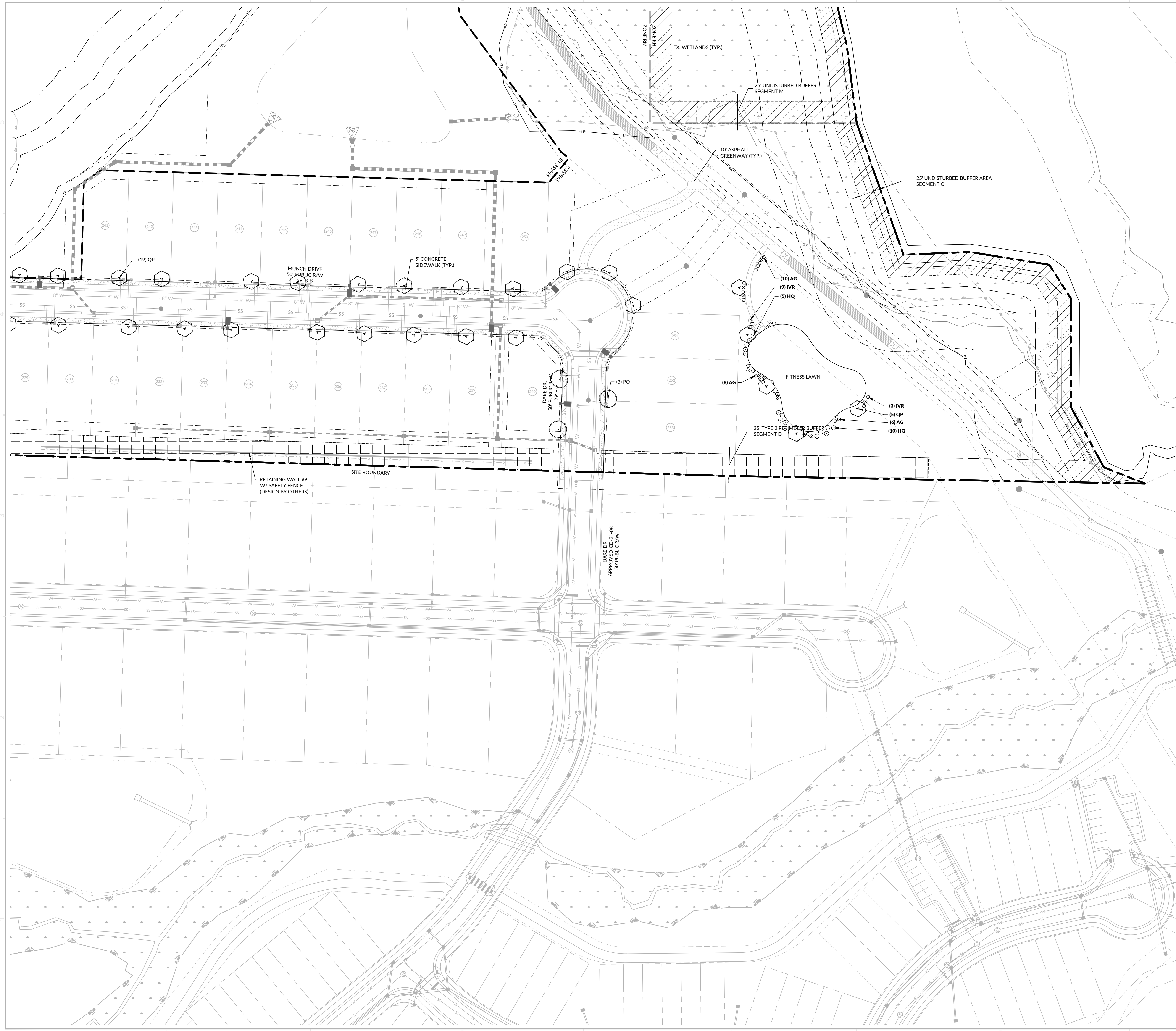
WR JOB NUMBER: 23-0045
DRN: WR DGN: WR CKD: WR

LANDSCAPE PLAN

L1.03

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PLANT LEGEND

SYMBOL	CODE	BOTANICAL NAME
TREES		
	AR	Acer rubrum
	CC	Cercis canadensis
	CV	Chionanthus virginicus
	NS	Nyssa sylvatica
	PC	Pistacia chinensis
	PO	Platanus occidentalis
	QP	Quercus phellos
	TD	Taxodium distichum
	UA	Ulmus americana
SHRUBS		
	AG	Abelia x grandiflora
	HQ	Hydrangea quercifolia
	IC	Ilex cornuta 'Needlepoint'
	IG	Ilex glabra 'Shamrock'
	IVO	Ilex vomitoria
	IVR	Itea virginica
GROUND COVERS		
	POLL	Pollinator Mix

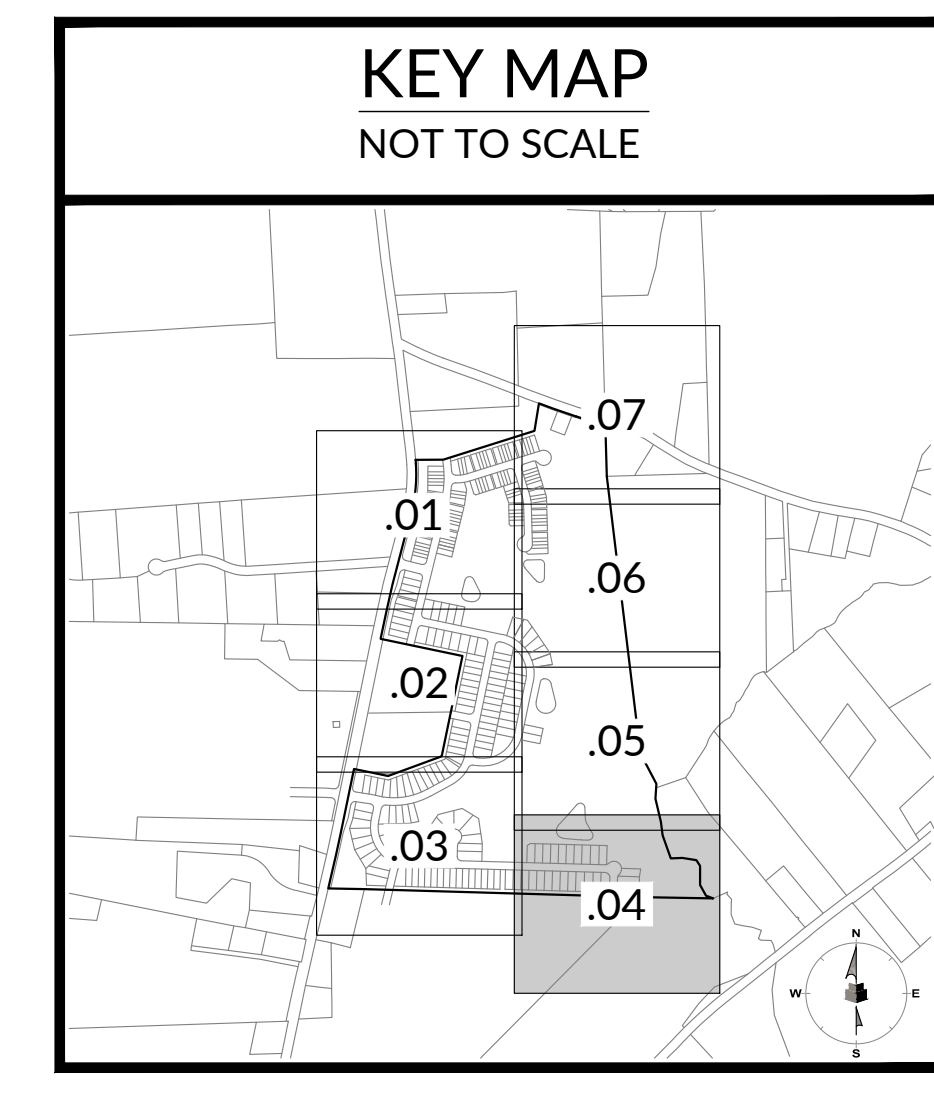
PRELIMINARY
 NOT APPROVED FOR
 CONSTRUCTION
 WEL B. WHITT

0 25 50
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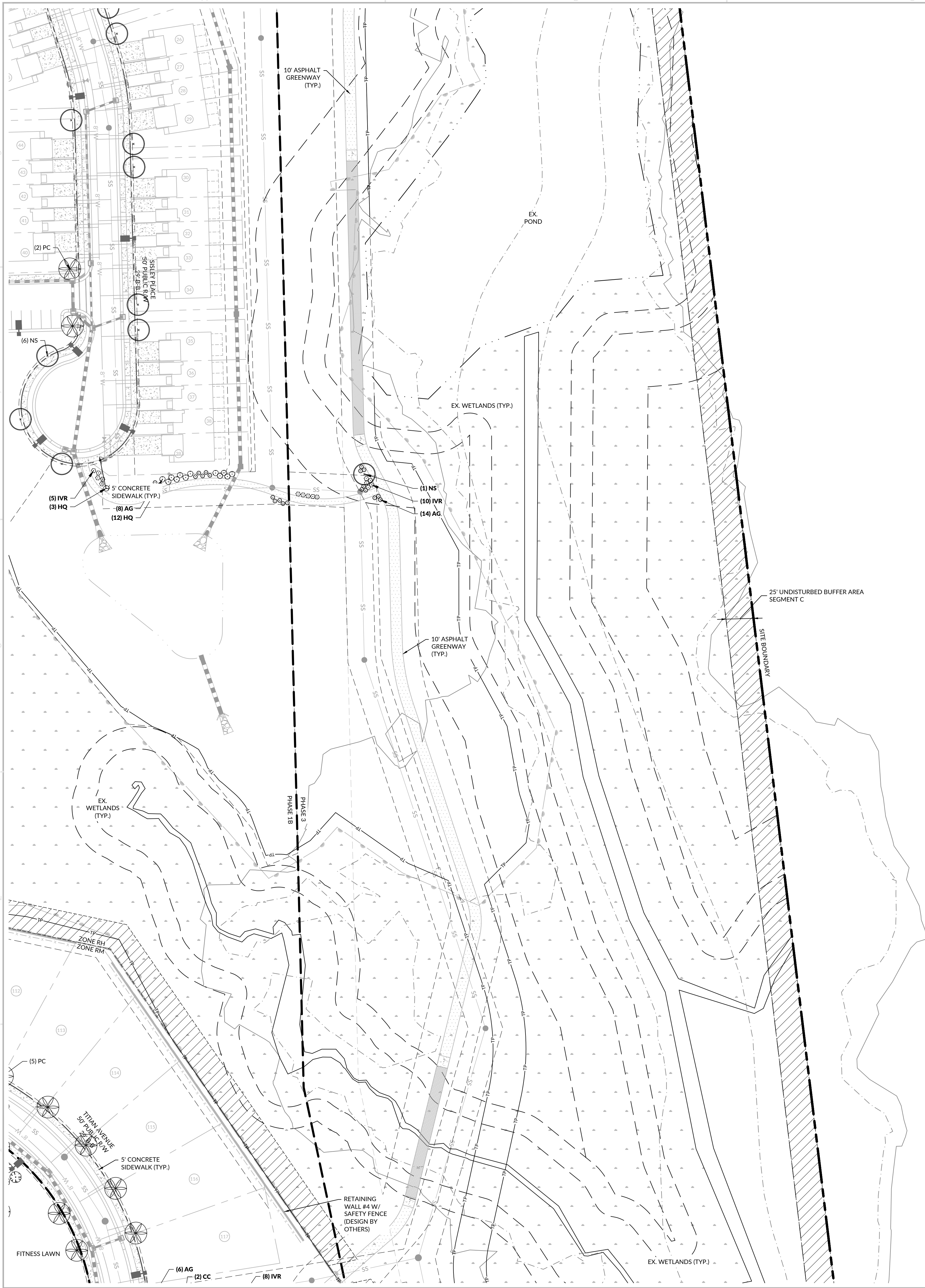
INITIAL PLAN DATE: 11/01/2024
 REVISIONS:
 1 - 01/02/2025
 REVISED PER REVIEW COMMENTS

WR JOB NUMBER 23-0045
 DRN: WR DGN: WR CKD: WR

LANDSCAPE PLAN



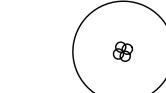






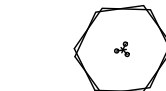

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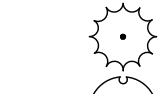


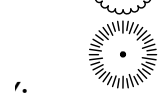
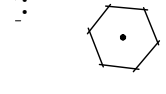

PLANT LEGEND

SYMBOL CODE BOTANICAL NAME

TREES

-  AR *Acer rubrum*
-  CC *Cercis canadensis*
-  CV *Chionanthus virginicus*
-  NS *Nyssa sylvatica*
-  PC *Pistacia chinensis*
-  PO *Platanus occidentalis*
-  QP *Quercus phellos*
-  TD *Taxodium distichum*
-  UA *Ulmus americana*

SHRUBS

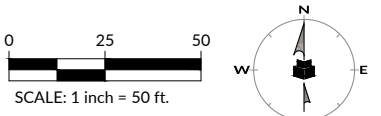
-  AG *Abelia x grandiflora*
-  HQ *Hydrangea quercifolia*
-  IC *Ilex cornuta 'Needlepoint'*
-  IG *Ilex glabra 'Shamrock'*
-  IVO *Ilex vomitoria*
-  IVR *Itea virginica*

GROUND COVERS

-  POLL Pollinator Mix



CONSTRUCTION INFRASTRUCTURE DRAWINGS
BROADMOOR
 CID-24-06

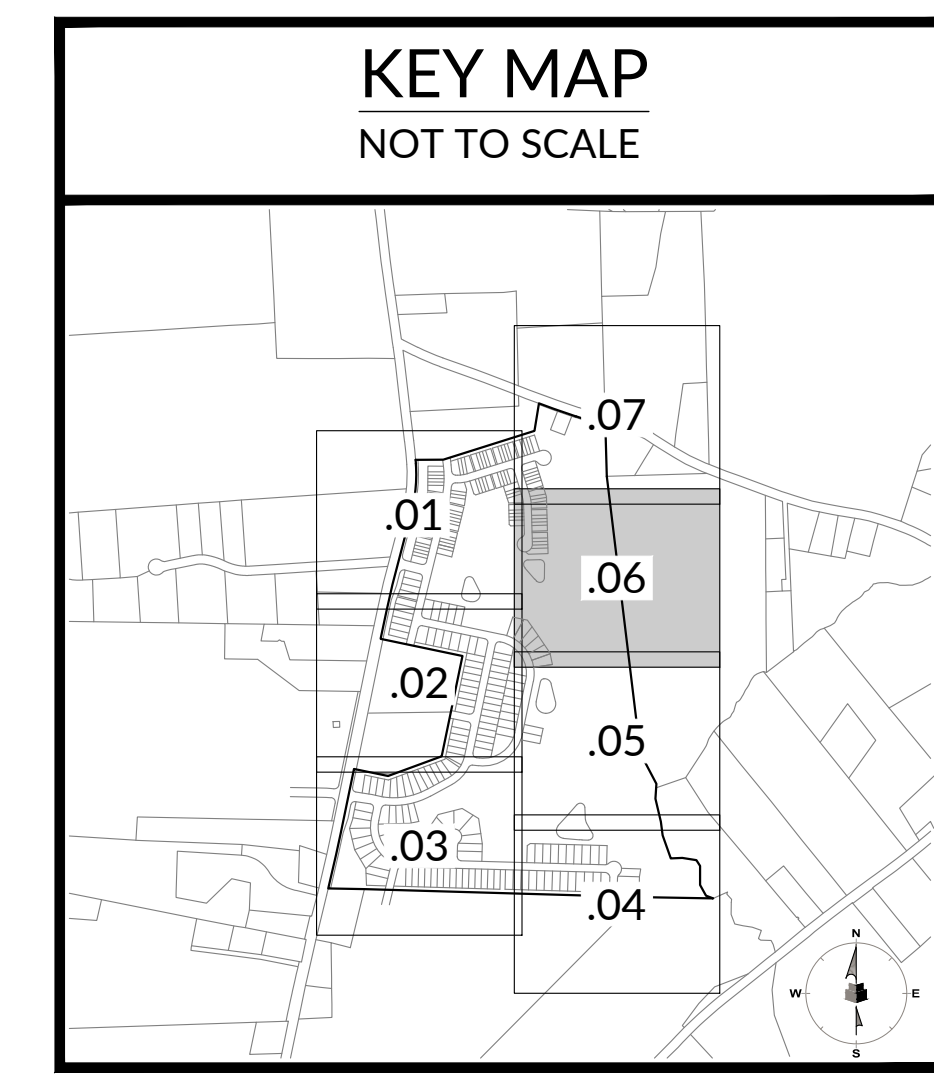


INITIAL PLAN DATE: 11/01/2024
 REVISIONS:
 1 - 01/02/2025
 REVISED PER REVIEW COMMENTS

WR JOB NUMBER 23-0045
 DRN: WR DGN: WR CKD: WR

LANDSCAPE PLAN

L1.06



1/23/2025 10:15 AM W:\Projects\2025\Broadmoor\CID-24-06\Drawings\LANDSCAPE\L1.06 LANDSCAPE LIGHTING PLAN.dwg Thursday, January 2, 2025 2:04:04 PM W:\MARBELL

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PULTEGROUP
 1225 CRESCENT GREEN DRIVE,
 SUITE 200
 CARY, NC 27518

ROLESVILLE ROAD | ROLESVILLE, NC 27587 | WAKE COUNTY

LANDSCAPE CALCULATIONS:

PERIMETER BUFFERS

BUFFER TYPE 2 - 25' WIDE
 REQUIREMENTS: 3 CANOPY TREES PER 100 LF
 1 UNDERSTORY TREE PER 100 LF
 50 SHRUBS PER 100 LF
 6' FENCE OR 10 ADDITIONAL SHRUBS PER UDO TABLE 6.2.2.1

BUFFER TYPE 3 - 25' WIDE
 REQUIREMENTS: 4 CANOPY TREES PER 100 LF
 2 UNDERSTORY TREE PER 100 LF
 60 SHRUBS PER 100 LF
 6' HT WALL OR 10 ADDITIONAL SHRUBS PER UDO TABLE 6.2.2.1

SEGMENT 'A'
 REQUIRED: 105 LF
 25' WIDE TYPE 3
 4 CANOPY TREES
 2 UNDERSTORY TREES
 60 SHRUBS
 6' HT WALL

PROVIDED:
 4 CANOPY TREES
 2 UNDERSTORY TREES
 60 SHRUBS
 6' HT WALL

SEGMENT 'B'
 REQUIRED: 735 LF
 25' WIDE TYPE 3
 4 CANOPY TREES PER 100 LF
 2 UNDERSTORY TREE PER 100 LF
 60 SHRUBS PER 100 LF
 6' HT WALL

PROVIDED:
 28 CANOPY TREES PER 100 LF
 14 UNDERSTORY TREE PER 100 LF
 420 SHRUBS PER 100 LF
 6' HT WALL

SEGMENT 'C'
 REQUIRED: 3316 LF
 25' WIDE TYPE 3
 4 CANOPY TREES PER 100 LF
 2 UNDERSTORY TREE PER 100 LF
 60 SHRUBS PER 100 LF
 6' HT WALL

PROVIDED:
 EXISTING VEGETATION TO REMAIN; TO BE SUPPLEMENTED AS NECESSARY TO ACHIEVE BUFFER STANDARDS

SEGMENT 'D'
 REQUIRED: 378 LF
 25' WIDE TYPE 2
 3 CANOPY TREES PER 100 LF
 1 UNDERSTORY TREE PER 100 LF
 50 SHRUBS PER 100 LF
 6' FENCE

PROVIDED:
 12 CANOPY TREES PER 100 LF
 4 UNDERSTORY TREE PER 100 LF
 200 SHRUBS PER 100 LF
 6' FENCE

SEGMENT 'E'
 REQUIRED: 1405 LF
 25' WIDE TYPE 2
 3 CANOPY TREES PER 100 LF
 1 UNDERSTORY TREE PER 100 LF
 50 SHRUBS PER 100 LF
 6' WALL

PROVIDED:
 42 CANOPY TREES PER 100 LF
 14 UNDERSTORY TREE PER 100 LF
 700 SHRUBS PER 100 LF
 6' WALL

SEGMENT 'F'
 REQUIRED: 314 LF
 25' WIDE TYPE 3
 3 CANOPY TREES PER 100 LF
 1 UNDERSTORY TREE PER 100 LF
 50 SHRUBS PER 100 LF
 6' FENCE

PROVIDED:
 9 CANOPY TREES PER 100 LF
 3 UNDERSTORY TREE PER 100 LF
 150 SHRUBS PER 100 LF
 6' FENCE

SEGMENT 'G'
 REQUIRED: 824 LF
 25' WIDE TYPE 2
 3 CANOPY TREES PER 100 LF
 1 UNDERSTORY TREE PER 100 LF
 50 SHRUBS PER 100 LF
 6' FENCE

PROVIDED:
 24 CANOPY TREES PER 100 LF
 8 UNDERSTORY TREE PER 100 LF

SEGMENT 'H'
 REQUIRED: 881 LF
 25' WIDE TYPE 2
 3 CANOPY TREES
 1 UNDERSTORY TREES
 50 SHRUBS
 6' FENCE

PROVIDED:
 27 CANOPY TREES
 9 UNDERSTORY TREES
 450 SHRUBS
 6' FENCE

SEGMENT 'I'
 REQUIRED: 290 LF
 25' WIDE TYPE 3
 4 CANOPY TREES
 2 UNDERSTORY TREES
 60 SHRUBS
 6' HT WALL

PROVIDED:
 12 CANOPY TREES
 6 UNDERSTORY TREES
 120 SHRUBS
 6' HT WALL

SEGMENT 'J'
 REQUIRED: 952 LF
 25' WIDE TYPE 3
 4 CANOPY TREES
 2 UNDERSTORY TREES
 60 SHRUBS
 6' HT WALL

PROVIDED:
 EXISTING VEGETATION TO REMAIN; TO BE SUPPLEMENTED AS NECESSARY TO ACHIEVE BUFFER STANDARDS

SEGMENT 'K'
 REQUIRED: 293 LF
 25' WIDE TYPE 3
 4 CANOPY TREES
 2 UNDERSTORY TREES
 60 SHRUBS
 6' HT WALL

PROVIDED:
 EXISTING VEGETATION TO REMAIN; TO BE SUPPLEMENTED AS NECESSARY TO ACHIEVE BUFFER STANDARDS

SEGMENT 'L'
 REQUIRED: 864 LF
 25' WIDE TYPE 3
 4 CANOPY TREES
 2 UNDERSTORY TREES
 60 SHRUBS
 6' HT WALL

PROVIDED:
 EXISTING VEGETATION TO REMAIN; TO BE SUPPLEMENTED AS NECESSARY TO ACHIEVE BUFFER STANDARDS

SEGMENT 'M'
 REQUIRED: 182 LF
 25' WIDE TYPE 3
 4 CANOPY TREES
 2 UNDERSTORY TREES
 60 SHRUBS
 6' HT WALL

PROVIDED:
 EXISTING VEGETATION TO REMAIN; TO BE SUPPLEMENTED AS NECESSARY TO ACHIEVE BUFFER STANDARDS

SEGMENT 'N'
 REQUIRED: 562 LF
 30' WIDE STREETSCAPE BUFFER
 14 TREES (1 TREE PER 40)

PROVIDED:
 15 TREES

SEGMENT 'O'
 REQUIRED: 456 LF
 30' WIDE STREETSCAPE BUFFER
 12 TREES (1 TREE PER 40)

PROVIDED:
 12 TREES

SEGMENT 'P'
 REQUIRED: 663 LF
 50' WIDE STREETSCAPE BUFFER
 17 TREES (1 TREE PER 40)

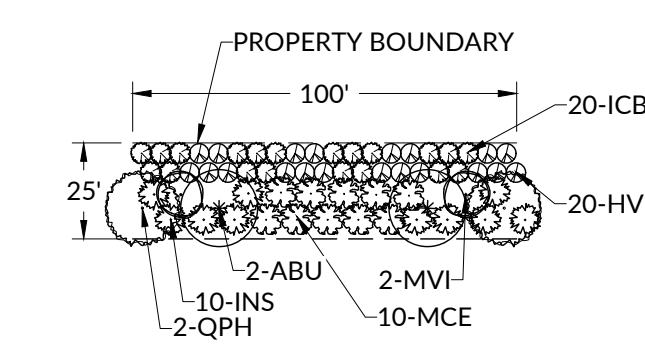
PROVIDED:
 17 TREES

SEGMENT 'Q'
 REQUIRED: 455 LF
 30' WIDE STREETSCAPE BUFFER
 11 TREES (1 TREE PER 40)

PROVIDED:
 11 TREES

BUFFER PLANT SYMBOL KEY:

- CANOPY TREES:**
- QPH - QUERCUS PHELLOS
 - ABU - ACER BURGERIANUM
- UNDERSTORY TREES:**
- MVI - MAGNOLIA VIRGININA
 - ICB - ILEX CORNUTA 'BURFORDII NANA'
 - HVE - HAMAMELIS VERNALIS
 - INS - ILEX x 'NELLIE R. STEVENS'
 - MCE - MYCERA CERIFERA
- SHRUBS**

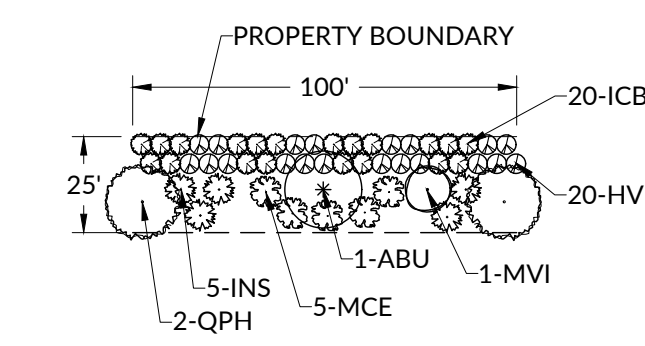


25' PERIMETER BUFFER TYPE 3 - TYPICAL 100' SECTION
 THIS DETAIL IS TO BE USED IF SUPPLEMENTAL PLANTING IS REQUIRED IN BUFFER

PLANTING REQUIREMENTS:
 4 CANOPY TREES PER 100 LF
 2 UNDERSTORY TREE PER 100 LF
 60 SHRUBS PER 100 LF
 6' HT WALL OR 10 ADDITIONAL SHRUBS PER 100 LF PER UDO TABLE 6.2.2.1

*NO SINGLE SPECIES SHALL COMPRISE MORE THAN 50% OF PLANT TYPE IN BUFFERS

NOTE: REFER TO TYPICAL BUFFER DETAIL WHERE SUPPLEMENTAL PLANTING IS REQUIRED IN LIEU OF EXISTING VEGETATION. AREAS OF MATURE EXISTING VEGETATION ARE TO REMAIN IN ORDER TO MEET THE BUFFER REQUIREMENTS. DURING CONSTRUCTION, A SITE INSPECTION BY THE LDA WILL DETERMINE IF THE EXISTING VEGETATION MEETS THE REQUIRED MINIMUM LANDSCAPING.



25' PERIMETER BUFFER TYPE 2 - TYPICAL 100' SECTION
 THIS DETAIL IS TO BE USED IF SUPPLEMENTAL PLANTING IS REQUIRED IN BUFFER

PLANTING REQUIREMENTS:
 3 CANOPY TREES PER 100 LF
 1 UNDERSTORY TREE PER 100 LF
 50 SHRUBS PER 100 LF
 6' FENCE OR 10 ADDITIONAL SHRUBS PER 100 LF PER UDO TABLE 6.2.2.1

*NO SINGLE SPECIES SHALL COMPRISE MORE THAN 50% OF PLANT TYPE IN BUFFERS

NOTE: TYPICAL BUFFER DETAIL IS INTENDED FOR WHERE SUPPLEMENTAL PLANTING IS REQUIRED IN LIEU OF EXISTING VEGETATION. IN AREAS OF EXISTING MATURE VEGETATION THAT EXISTING PLANT MATERIAL SHALL BE USED TO FULLY MEET THE BUFFER REQUIREMENTS.

LANDSCAPE CALCULATIONS:

STREET TREES

REQUIREMENTS: SHADE TREES 40' OC OR UNDERSTORY TREES 20' OC

DARE DR
 REQUIRED: 252 LF
 6.3 SHADE TREES
 PROVIDED: 7 SHADE TREES

DELACROIX DR :
 REQUIRED: 1672 LF
 41.8 SHADE TREES
 PROVIDED: 42 SHADE TREES

TITIAN AVE:
 REQUIRED: 1675 LF
 41.8 SHADE TREES
 PROVIDED: 42 SHADE TREES

MUNCH DR:
 REQUIRED: 1826 LF
 45.7 SHADE TREES
 PROVIDED: 46 SHADE TREES

WARHOL CT:
 REQUIRED: 140 LF
 3.5 SHADE TREES
 PROVIDED: 4 SHADE TREES

SEURAT PL:
 REQUIRED: 178 LF
 4.45 SHADE TREES
 PROVIDED: 5 SHADE TREES

PICASSO DR:
 REQUIRED: 178 LF
 4.45 SHADE TREES
 PROVIDED: 5 SHADE TREES

BEARDEN ST:
 REQUIRED: 1188 LF
 29.7 SHADE TREES
 PROVIDED: 30 SHADE TREES

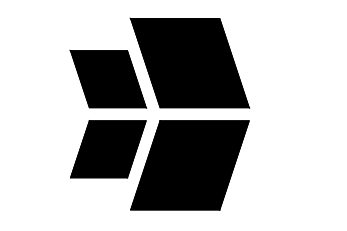
RODIN WAY:
 REQUIRED: 640 LF
 16 SHADE TREES
 PROVIDED: 16 SHADE TREES

SISLEY PL:
 REQUIRED: 543 LF
 13.6 SHADE TREES
 PROVIDED: 14 SHADE TREES

PLANT SCHEDULE						
SYMBOL	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER		QTY
TREES						
	AR	Acer rubrum / Red Maple	3" CAL., 12' HT MIN	B&B		20
	CC	Cercis canadensis / Eastern Redbud Multi-trunk	6" Ht.	B&B		23
	CV	Chionanthus virginicus / White Fringetree	6" Ht.	B&B		17
	NS	Nyssa sylvatica / Tupelo	3" CAL., 12' HT MIN	B&B		36
	PC	Pistacia chinensis / Chinese Pistache	3" CAL., 12' HT MIN	B&B		78
	PO	Platanus occidentalis / American Sycamore	3" CAL., 12' HT MIN	B&B		69
	QP	Quercus phellos / Willow Oak	3" CAL., 12' HT MIN	B&B		98
	TD	Taxodium distichum / Bald Cypress	3" CAL., 12' HT MIN	B&B		29
	UA	Ulmus americana / American Elm	3" CAL., 12' HT MIN	B&B		30
SHRUBS						
	AG	Abelia x grandiflora / Glossy Abelia	24" HT. MIN.	CONT.		174
	HQ	Hydrangea quercifolia / Oakleaf Hydrangea	7 gal.	CONT.		133
	IC	Ilex cornuta 'Needlepoint' / Needlepoint Chinese Holly	24" HT. MIN.	CONT.		98
	IG	Ilex glabra 'Shamrock' / Shamrock Inkberry Holly	24" HT. MIN.	CONT.		95
	IVO	Ilex vomitoria / Yaupon Holly	24" HT. MIN.	CONT.		89
	IVR	Itea virginica / Virginia Sweetspire	24" HT. MIN.	CONT.		124
SYMBOL	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER	SPACING	QTY
GROUND COVERS						
	POLL	Pollinator Mix / Coreopsis, Echinacea, Rudbeckia	4" POT MIN.		24" o.c.	2,418

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WithersRavenel
 167 E. Chatham St. | Suite 2101 | Cary, NC 27511
 License #: F-14791 | t: 919.238.0380 | www.withersravenel.com



PULTEGROUP
 1225 CRESCENT GREEN DRIVE,
 SUITE 200
 CARY, NC 27518

CONSTRUCTION INFRASTRUCTURE DRAWINGS
BROADMOOR
CID-24-06
 ROLESVILLE ROAD | ROLESVILLE, NC 27587 | WAKE COUNTY



INITIAL PLAN DATE: 11/01/2024
 REVISIONS:


WR JOB NUMBER 23-0045
 DRN: WR DGN: WR CKD: WR

LANDSCAPE DETAILS

L1.08

EST. 1983

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CALLOUT	SYMBOL	LAMP	DESCRIPTION	BALLAST	MOUNTING	MODEL	VOLTS	QUANTITY
RDWY		(1) 75W LED Array, LED	ATB0 SERIES 73W LED 1050MA TYPE 2 4000K CCT	ELECTRONIC	30' POLE	American Electric Lighting, ATB0 ROADWAY LED	120V 1P 2W	79

PHASE	# OF POLES	POLE #
PHASE 1	38 POLES	(1-38)
PHASE 2	21 POLES	(39-59)
PHASE 3	20 POLES	(60-79)
TOTAL	79 POLES	

Roadway Lighting	
AVERAGE FOOT-CANDLES	0.61
MAXIMUM FOOT-CANDLES	1.4
MINIMUM FOOT-CANDLES	0.2
MINIMUM TO MAXIMUM FC RATIO	0.11
MAXIMUM TO MINIMUM FC RATIO	8.88
AVERAGE TO MINIMUM FC RATIO	3.95



Outdoor Lighting
Roadway LED

Light source: LED (varies)
Lumens: 4,807 - 25,050 (lumens dependent)

Wattage	Light Pattern	IESNA Backlight Layout - Class (B/C) Rating
LED 50	IESNA Type III (medium oval)	IES-LD-G1
LED 75	IESNA Type II (long oval)	IES-LD-G1
LED 105	IESNA Type II (long oval)	IES-LD-G1
LED 150	IESNA Type III (medium oval)	IES-LD-G2
LED 215	IESNA Type III (medium oval)	IES-LD-G3
LED 280	IESNA Type III (medium oval)	IES-LD-G4

Color temperature: 4,000K
Warm-up and reheat times: Instant on (no warm-up or reheat time)

Poles available:

Name	Mounting height	Color
Fiberglass	25, 30, 35'	Gray
Fiberglass	25, 30, 35'	Black (additional cost)
Wood	25, 30, 35'	Standard
Metal (special conditions*)	25, 30, 35'	Gray

Features

Features	Benefits
LED or no installation cost	Free up capital for other projects
Design services by lighting professionals included	Meets industry standards and lighting ordinances
Maintenance included	Eliminates high and unexpected repair bills
Electricity included	Less expensive than overhead service
Warranty included	Worry free
One low monthly cost on your electric bill	Convenience and savings for you
Turnkey operation	Provides hassle-free installation and service
Backed by over 40 years of experience	A name you can trust today... and tomorrow.

*If raised foundation available when requested.

Outdoor Lighting
Roadway LED

The Roadway LED is a green solution and great fit for streets, roads, long narrow areas and parking lots. This energy-efficient luminaire delivers the light where it is needed while increasing visibility and reducing spill light to adjoining properties. Choose luminaire with medium light output on wood or fiberglass poles for mount on an existing pole. Available with one to four fixtures per pole, depending on the luminaire combination selected.

LED Light Emitting Diode: 50 | 75 | 105 | 150 | 215 | 280 watts

Mounting heights: 25 | 30 | 35'

Color: Gray Black

Poles: Fiberglass Metal (special conditions) Wood

For additional information, visit us at dukeenergy.com/outdoorlighting or call us toll free at 866.768.6417.

WithersRavenel
167 E. Chatham St. | Suite 2101 Cary, NC 27511
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CONSTRUCTION INFRASTRUCTURE DRAWINGS
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ROLESVILLE ROAD | ROLESVILLE, NC 27587 | WAKE COUNTY

PRELIMINARY
NOT APPROVED FOR
CONSTRUCTION
WEL B. WHITT

0 100 200
SCALE: 1 inch = 200 ft.

INITIAL PLAN DATE: 11/01/2024
REVISIONS:

WR JOB NUMBER 23-0045
DRN: WR DGN: WR CKD: WR

LIGHTING EXHIBIT

SL1.00

J:\23\0045\puls\wonder\assemblies\CID\Drawings\infrastructure\CID-24-06\LIGHTING PLAN.dwg Thursday, January 2, 2025 4:05:51 PM - WAKENELL

EST: 1/1/2025

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