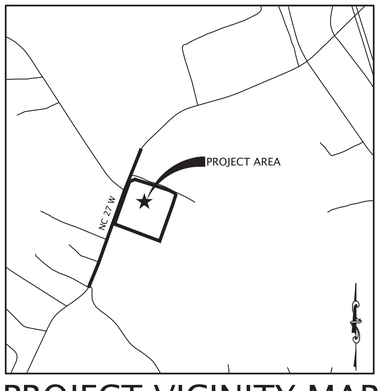
JOHNSONVILLE ELEMENTARY SCHOOL-PHASE 2

HARNETT COUNTY, NORTH CAROLINA

SITE DATA TABLE		
JURISDICTION		HARNETT COUNTY, NORTH CAROLINA
PROPERTY OWNER		HARNETT COUNTY BOARD OF EDUCATION
OWNER ADDRESS		PO BOX 1029 LILLINGTON, NC 27546
OWNER CONTACT		DR. AARON FLEMING AFLEMING@HARNETT.K12.NC.US
HARNETT REGIONAL WATER CONTACT		GLENNN MCFADDEN GMCFADDEN@HARNETT.ORG
LKC ENGINEERING CONTACT		PHILIP PICERNO PHILIP@LKCENGINEERING.COM
PROPERTY PIN		9576-04-7025.000
PROPERTY PARCEL ID		09957603 9000
DEED INFOMATION		DB 360 PG 0412
PROPERTY ZONED		RA-20R
ACREAGE		14.66 ACS.
SETBACKS	FRONT	35'
	BACK	25'
	SIDES	10'

SHEET INDEX

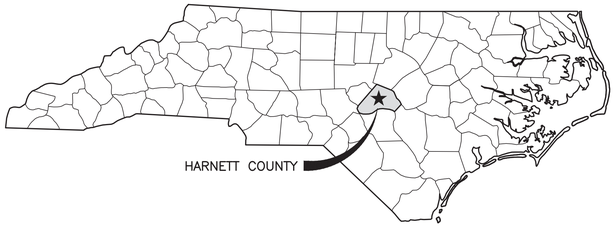


PROJECT VICINITY MAP

Scale: 1"=1000'

NOTE:

THIS DEVELOPMENT IS WITHIN ONE MILE OF A VOLUNTARY AGRICULTURAL DISTRICT.



COUNTY LOCATION MAP

NTS

LKC

Engineering
Landscape Architecture
Planning

LKC Engineering, pllc
140 Aqua Shed Court
Aberdeen, NC 28315
O: 910.420.1437
F: 910.637.0096
lkcengineering.com
License No. P-1095

GENERAL NOTES

ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON THIS SHEET SHALL BE APPLIED TO ALL CONTRACT DOCUMENTS AND SHEETS IN THIS SET.

1. SURVEY, BASE MAPPING, & TOPOGRAPHICAL DATA PROVIDED BY LKC ENGINEERING, PLLC; JEFFREY GREEN, PLS, LIC. # L-3972; 140 AQUA SHED CT., ABERDEEN, NC 28315, TEL #: 910-420-1436.
2. THE GENERAL CONTRACTOR SHALL FIELD VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AT THE JOB SITE.
3. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR WITH THE SURVEYOR OF RECORD PRIOR TO BEGINNING CONSTRUCTION. BENCHMARK IS AN EIP LOCATED AT THE SOUTHERN CORNER OF THE PROPERTY CLOSEST TO NC 27 W. HAVING AN ELEVATION OF 364.44.
4. THE VERTICAL DATUM FOR THIS SURVEY IS BASED ON NAVD 88.
5. ALL DIMENSIONS AND ALL ELEVATIONS ARE MEASURED TO BACK OF CURB UNLESS OTHERWISE NOTED.
6. THE INTENT OF THE LIMITS OF DISTURBANCE/CONSTRUCTION (LOD/C) SHOWN ON THE DRAWINGS IS TO DEFINE THE GENERAL PROJECT AREA TO CONSTRUCT, INSTALL AND/OR MODIFY THE SITE. TYPICALLY, THE LOD/C WILL FOLLOW RIGHT-OF-WAY OR PROPERTY LINES. THE CONTRACTOR SHALL CONTACT THE OWNER'S REPRESENTATIVE REGARDING ANY QUESTIONS AS TO THE EXACT LOCATION OF THE LOD/C PRIOR TO BID AND PRIOR TO BEGINNING CONSTRUCTION. ALL ITEMS SHOWN ON THESE PLANS THAT DO NOT SPECIFICALLY STATE 'NOT-IN-CONTRACT (NIC), SHALL BE INCLUDED IN THE BID COST, INCLUDING ITEMS THAT MAY BE OUTSIDE THE PROJECT LIMITS.
7. LOCATIONS OF EXISTING UTILITY LINES HAVE BEEN TAKEN FROM UTILITY RECORDS SUPPLEMENTED BY FIELD INSPECTIONS AND SHOULD INDICATE IN GENERAL THE TYPE OF UNDERGROUND UTILITIES NOW IN SERVICE. LOCATIONS SHOWN ARE NOT GUARANTEED. DEVELOPERS AND/OR CONTRACTORS SHALL NOT ONLY MAKE SUBSURFACE INVESTIGATIONS BUT SHALL ALSO ALLOW FOR CONTINGENCIES WHICH MIGHT ARISE BY REASON OF ENCOUNTERING UNRECORDED LINES OR LINES BEING IN DIFFERENT LOCATIONS THAN INDICATED ON THESE PLANS. AT LEAST 48-HOURS PRIOR OR SOONER IF REQUIRED BY THE LOCAL MUNICIPALITY TO ANY CONSTRUCTION ACTIVITY, EXCAVATION, GRADING, OR DIGGING ON THE SITE, THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES TO VERIFY AND/OR FIELD-LOCATE THEIR RESPECTIVE UTILITIES (THE NORTH CAROLINA ONE CALL CENTER - 1-800-632-4949). ALL DAMAGE INCURRED TO EXISTING UTILITY LINES DURING CONSTRUCTION SHALL BE REPAIRED AT THE GENERAL CONTRACTORS EXPENSE.
8. CONTRACTOR SHALL INSTALL 6-FT HIGH TEMPORARY CHAIN LINK CONSTRUCTION FENCING OR APPROVED EQUAL IN ALL AREAS WHERE DIRECT ACCESS TO CONSTRUCTION ACTIVITY IS POSSIBLE, AND SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
9. A FORMAL EROSION AND SEDIMENTATION CONTROL PERMIT IS REQUIRED FOR THIS SITE UNDER THE REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ). THE GENERAL CONTRACTOR IS REQUIRED TO AND SHALL FOLLOW ALL LOCAL, STATE AND FEDERAL REGULATIONS TO MINIMIZE EROSION AND THE TRANSPORT OF SEDIMENT OFF-SITE DURING CONSTRUCTION, INCLUDING THE PLACEMENT AND MAINTENANCE OF CONTROL MEASURES. ALL MEASURES REQUIRED SHALL BE INCLUDED IN THE BID COST WHETHER SPECIFICALLY INDICATED OR NOT.
10. ANY AND ALL PARKING STRIPES SHALL BE 4" WIDE AND SHALL BE PAINTED WITH STANDARD WHITE TRAFFIC PAINT. CROSSWALKS, STOP BARS AND TRAFFIC ARROWS SHALL BE MARKED WITH THERMOPLASTIC WHITE TRAFFIC MARKINGS.
11. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL HARNETT COUNTY & STATE REQUIREMENTS.
12. DISTURBED AREAS NOT COVERED BY ASPHALT OR OTHER IMPERMEABLE SURFACES SHALL BE SEEDED AND STABILIZED PER SPECIFICATIONS.
13. ACCESSIBLE PARKING SPACES, ACCESS AISLES, & SIGNAGE SHALL BE PROVIDED BY THE GENERAL CONTRACTOR AND INSTALLED PER FEDERAL, STATE, AND LOCAL REQUIREMENTS UNDER THE AMERICANS WITH DISABILITIES ACT (ADA). STANDARD R7-8 RESERVED PARKING AND MAXIMUM PENALTY $250 NCGS 20.37.6 SIGNS MUST BE INSTALLED IN FRONT OF ALL ACCESSIBLE PARKING SPACES. "VAN ACCESSIBLE" SIGNS MUST BE PROVIDED IN FRONT OF THE VAN ACCESSIBLE PARKING SPACE(S).
14. ALL TRAFFIC CONTROL DEVICES, PAVEMENT MARKINGS, SIGNS, AND SIGNALS SHALL BE DESIGNED, INSTALLED AND MAINTAINED IN CONFORMANCE WITH THE STANDARDS SET FORTH IN THE NORTH CAROLINA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING TREE PROTECTION FENCING AROUND ALL "AT-RISK" TREES WITHIN THE VICINITY OF THE CONSTRUCTION ACTIVITY WHETHER SPECIFICALLY INDICATED ON THE PLANS OR NOT. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO BEGINNING ANY CONSTRUCTION OR OTHER DEVELOPMENT ACTIVITIES, AND SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE DURATION OF THE PROJECT UNTIL FINAL SITE INSPECTION.
16. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY & THE NORTH CAROLINA DEPARTMENT OF WATER QUALITY FOR APPROVAL TO REMOVE ALL CONSTRUCTED TEMPORARY EROSION & SEDIMENTATION CONTROL MEASURES, AND FOR THE APPROVAL OF PERMANENT GROUND COVER.
17. CONTRACTOR SHALL INSTALL A RAIN GAUGE AND MAINTAIN A MONITORING LOG ACCORDING TO NCDEQ REQUIREMENTS UNTIL THE AGENCY HAS RELEASED THE SITE.
18. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL ACCORDING TO NCDOT REQUIREMENTS DURING THE CONSTRUCTION OF IMPROVEMENTS IN THE RIGHT-OF-WAY WHEN APPLICABLE.
19. CONTRACTOR SHALL PROVIDE RED-LINE PRINTS OF ALL CHANGES AND MODIFICATIONS. THIS INFORMATION SHALL BE PROVIDED TO THE DESIGNER OF RECORD AT THE TIME OF SUBSTANTIAL COMPLETION.
20. FINAL INSPECTION AND APPROVAL SHALL BE MADE PRIOR TO CERTIFICATE OF OCCUPANCY BEING ISSUED.
21. CONTRACTOR SHALL MAINTAIN A COPY OF THE LOCAL AUTHORITY'S APPROVED PLANS ALONG WITH ANY PERMIT LETTERS THAT HAVE BEEN MARKED "APPROVED" OR "APPROVED AS CORRECTED" ON SITE DURING CONSTRUCTION.
22. ALL EXCAVATION IN THE PROJECT AREA SHALL BE UNCLASSIFIED. CONTRACTOR SHALL INCLUDE ALL COST ASSOCIATED WITH SOIL MATERIAL REMOVAL, REPAIR AND DISPOSAL UNDER THE BASE BID SCOPE OF WORK.

ABBREVIATIONS

ABBREVIATION:	DESCRIPTION:	ABBREVIATION:	DESCRIPTION:
A/C	AIR CONDITIONING	NIC	NOT IN CONTRACT
ADJ	ADJACENT	NTS	NOT TO SCALE
AL	AREA LIGHT		
APROX	APPROXIMATE	O.C.	ON CENTER
ASSM	ASSEMBLY	OHE	OVERHEAD ELECTRIC
ASPH	ASPHALT		
		PC	POINT OF CURVATURE
BLDG	BUILDING	PI	POINT OF INTERSECTION
B.O.	BLOW-OFF	PIV	POST INDICATION VALVE
BOC	BACK OF CURB	PP	POWER POLE
BOW	BOTTOM OF WALL	PT	POINT OF TANGENCY
BX	BOX	PVC	POLYVINYL CHLORIDE
		PVMT	PAVEMENT
C.F.	CUBIC FOOT		
CI	CURB INLET	R	RADIUS
CL	CENTER LINE	R.J.	RESTRAINED JOINT
CONC	CONCRETE	R/W, ROW	RIGHT OF WAY
CONST	CONSTRUCTION	RCP	REINFORCED CONCRETE PIPE
CY	CUBIC YARD	RDCO	ROOF DRAIN CLEAN OUT
		REQD	REQUIRED
DEMO	DEMOLISH (DEMOLITION)	RQMT	REQUIREMENT
DP	DEEP	RT	RIGHT
DI	DUCTILE IRON	RWM	RIGHT OF WAY MONUMENT
D.I.P.	DUCTILE IRON PIPE		
DIA	DIAMETER	SCH	SCHEDULE
DIM	DIMENSION	SD	STORM DRAIN
DWG	DRAWING	SDCO	STORM DRAIN CLEAN OUT
		SDMH	STORM DRAIN MANHOLE
ECM	EXISTING CONCRETE MONUMENT	SED	SEDIMENT
EIP	EXISTING IRON PIPE	SF	SQUARE FOOT
EIS	EXISTING IRON STAKE	SPEC	SPECIFICATION
ELEC	ELECTRIC	SQ	SQUARE
ELEV	ELEVATION	SS	SANITARY SEWER
ELMH	ELECTRICAL MANHOLE	SSCO	SANITARY SEWER CLEAN OUT
ENCL	ENCLOSURE	SSMH	SANITARY SEWER MANHOLE
EOC	EDGE OF CONCRETE	STA	STATION
EOP	EDGE OF PAVEMENT	SY	SQUARE YARD
EQPT	EQUIPMENT		
ESMT	EASEMENT	TBM	TEMPORARY BENCHMARK
EX	EXISTING	TEL	TELEPHONE
		TEMP	TEMPORARY
FES	FLARED END SECTION	THK	THICK
FFE	FINISH FLOOR ELEVATION	TOC, T/C	TOP OF CURB
FH	FIRE HYDRANT	TOW	TOP OF WALL
FNC	FENCE	TPED	TELEPHONE PEDESTAL
FO	FIBER OPTIC	TS&V	TAPPING SADDLE & VALVE
FOC	FACE OF CURB	TYP	TYPICAL
FT	FOOT		
		UGE	UNDERGROUND ELECTRIC
G.V.	GATE VALVE	UTIL	UTILITY
GALV	GALVANIZE		
GND	GROUND		
GRAV	GRAVEL		
HDPE	HIGH DENSITY POLYETHYLENE		
L	LENGTH		
LF	LINEAR FOOT		
LFT	LEFT		
MAX	MAXIMUM		
MIN	MINIMUM		
MISC	MISCELLANEOUS		
M.J.	MECHANICAL JOINT		

LEGEND / KEY

NAME:	EXISTING	NEW
ASPHALT PAVEMENT		
CABLE TV	CA	
CENTERLINE		
CURB & GUTTER		
CONCRETE		
CONTOUR MAJOR	100	100
CONTOUR MINOR	99	99
EASEMENT		
FENCE	X X X	X X X
FIBER OPTIC	FO	
FORCE MAIN	FM	FM
GAS LINE	G	
GAS VALVE	GV	
GRAVEL		
LIMITS OF DIST/CONST		LOD/C
LIGHT POLE		
OVERHEAD ELECTRIC	OE OE	
POWER POLE		
PROPERTY LINE		
PROPERTY LINE - ADJ		
RAILROAD		
RIGHT-OF-WAY (ROW)	ROW	ROW
SANITARY SEWER LINE	SS	
SANITARY SEWER MH	S	S
SANITARY SEWER CO		
SPOT EL. GS	+ 100.00	100.00
SPOT EL. TOC	+ 100.00	TOC 100.00
SPOT EL. TOW	+ 100.00	TOW 100.00
STORM DRAIN LINE		
STORM DRAIN FES	SD	
STORM DRAIN MH		
STORM DRAIN CI		
STORM DRAIN GI		
STORM DRAIN YI		
TELEPHONE LINE	T	
TELEPHONE PEDESTAL	T	
UNDERGROUND ELEC.	UE	
UTILITY POLE		
WATER LINE	W W	
WATER VALVE	WV	WV
FIRE HYDRANT	WV	
WATER METER	W	
WATER LINE BACKFLOW		
WATER LINE REDUCER		
IRON ROD/PIPE		
CONCRETE MONUMENT		
BENCHMARK		

EROSION CONTROL:	NEW
TEMP. CONST ENT.	
TEMP. SILT FENCE	SF
TEMP. DIVERSION	TD
TEMP. INLET PROTECT.	
TEMP. ROCK PIPE INLET PROTECTION	
RIPRAP DISSIPATOR	
TEMP. SILT FENCE OUTLET	
TEMP. SKIMMER BASIN WITH BAFFLES	
FAIRCLOTH SKIMMER	
TEMP. SEDIMENT TRAP WITH BAFFLES	
TEMP. SLOPE DRAIN	
TREE PROTECTION	TP TP
ROLLED EROSION CONTROL MATTING	
DEMOLITION LIMITS	

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NORTH CAROLINA PROFESSIONAL SEAL 043255 ENGINEER PHILIP A. PICERNO
1-28-22

LKC Engineering
Landscape Architecture
Surveying
140 Auga Shed Ct., Aberdeen, NC 28315
Office: 910-420-1437 Fax: 910-420-1438
lkcengineering.com License No. P-1095

Harnett County Schools

Johnsonville Elementary School Addition/Renovation-Phase 2

18495 NC-27 W, Cameron, NC 28326

ENERGY STAR PARTNER

ID	DATE	DESCRIPTION

ISSUE DATE: 01-28-2022
PROJECT #: 02103.000
DRAWN BY: MFL
CHECKED BY: PAP

GENERAL NOTES AND LEGEND

C-100

N/F STROUD REGINALD O
PIN 9576-04-6685.000
PID 099576 0022
DEED BK 1031 PG 0035

KIBBE LN.
60' ROW

EX. 4" PVC WL

N/F WRIGHT BRYAN MATTHEW & WRIGHT TIFFANY MARIE
PIN 9576-04-2566.000
PID 099576 0006 09
DEED BK 3905 PG 0489

EX. 8" PVC WL

N/F STROUD DAVID & C/O VONETTA FRENCH
PIN 9576-04-9642.000
PID 099576 0022 03
DEED BK 1031 PG 0031

N/F MOBLEY WALLACE & MOBLEY ARLENE
PIN 9576-14-1518.000
PID 099576 0022 01
DEED BK 1036 PG 0954

N/F BROWN TED D & JONES ROBERT H JR
PIN 9576-22-8711.000
PID 099266 0087
DEED BK 1633 PG 0868

N/F MCGILVARY DOROTHY JEAN
PIN 9576-04-2322.000
PID 099566 0023 03
DEED BK 1477 PG 0609

NC 27 W
60' PUBLIC ROW

EX. 20" DIP WM

N/F STROUD DAVID & C/O VONETTA FRENCH
PIN 9576-04-1254.000
PID 099566 0023 04
DEED BK 1477 PG 0609

N/F RIOS SANTANA CUTBERTO
PIN 9566-94-8166.000
PID 099566 0129
DEED BK 3803 PG 0254

N/F HUERTA GERMAN GONZALEZ & DAMIAN EDELDA GOMEZ
PIN 9576-14-2190.000
PID 099576 0025 01
DEED BK 3890 PG 0768

N/F SIMPSON CARLA KIBBE
PIN 9576-13-2829.000
PID 099576 0025 02
DEED BK 0936 PG 0565

N/F CONWAY THERESA
PIN 9576-13-1751.000
PID 099576 0025 03
DEED BK 2290 PG 0389

REMOVE EXISTING FENCE
EXISTING FIRE HYDRANT
EXISTING WATER METER
SAWCUT, DEMOLISH AND REMOVE EXISTING ASPHALT PAVEMENT
REMOVE EXISTING TREES
EXISTING SIGN AND CONCRETE PAD
EXISTING BUILDING FFE 367.83
EXISTING BLDG FFE 367.76
EX. SSMH RIM: 365.46 INV.: 360.98
EXISTING CONCRETE TO BE REMOVED EXISTING CANOPY AND STRUCTURE TO REMAIN
EXISTING BUILDING FFE 367.80
EXISTING CONNECTOR CORRIDOR TO BE REMOVED
DEMOLISH AND REMOVE EXISTING BUILDING (REFER TO ARCHITECTURAL BUILDING DEMOLITION PLAN)
EXISTING BLDG (VARIOUS FFE'S)
EXISTING 6" TCP SS LINE
EXISTING MOBILE CLASSROOMS TO REMAIN UNTIL CONSTRUCTION IS COMPLETED
REMOVE EXISTING GRAVEL
REMOVE EXISTING STORM INLET
EXISTING FORCE MAIN (CONTRACTOR TO FIELD VERIFY LOCATION)
REMOVE EXISTING BRICK SIGN
SAWCUT DEMOLISH AND REMOVE EXISTING CONCRETE SIDEWALK
EXISTING TRANSFORMER TO BE RELOCATED
EXISTING BOLLARDS TO BE REMOVED
REMOVE EXISTING INLET AND DRAINAGE PIPE
EXISTING BLDG FFE 367.85
EXISTING TRANSFORMER
RELOCATE EXISTING OVERHEAD ELECTRIC AND LIGHT POLES. COORDINATE WITH DUKE ENERGY.
DEMOLISH AND REMOVE EXISTING CANOPY (REFER TO ARCHITECTURAL BUILDING DEMOLITION PLAN)
REMOVE EX. SSMH RIM: 360.46 INV.: 356.40
EX. SSMH RIM: 359.09 INV.: 355.59
EXISTING PUMP STATION
SERVICE ROAD TO REMAIN
CONTRACTOR TO REPLACE/REPAIR EXISTING SIDEWALK AS NECESSARY
THE REROUTING OF SANITARY SEWER SHALL NOT CAUSE A DISRUPTION. SANITARY SEWER SERVICES MUST REMAIN ACTIVE DURING CONSTRUCTION.
EXISTING BLDG FFE 364.73
EXISTING MOBILE CLASSROOMS (TO REMAIN)
REMOVE EXISTING GRAVEL
EXISTING SOIL ROAD TO BE REPLACED WITH ASPHALT ROAD
REMOVE EXISTING GRAVEL

TBM: EIP 1IN.DIA. FLUSH
N: 563789.71
E: 1970188.89
ELEV: 364.44

NOTES:

1. ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON SHEET C-100 SHALL APPLY TO THIS PLAN.
2. THE PURPOSE OF THE PLAN IS FOR INFORMATIONAL PURPOSES ONLY. THOUGH THIS PLAN IS FROM AN ACTUAL FIELD SURVEY IT IS NOT AND SHOULD NOT BE CONSIDERED A RECORDABLE DOCUMENT.
3. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR WITH THE SURVEYOR OF RECORD PRIOR TO BEGINNING CONSTRUCTION. BENCHMARK IS AN EIP LOCATED AT THE SOUTHERN CORNER OF THE PROPERTY CLOSEST TO NC 27 W. HAVING AN ELEVATION OF 364.44. LOCATIONS OF EXISTING UTILITY LINES HAVE BEEN TAKEN FROM UTILITY RECORDS SUPPLEMENTED BY FIELD INSPECTIONS AND SHOULD INDICATE IN GENERAL THE TYPE OF UNDERGROUND FACILITIES NOW IN SERVICE. HOWEVER, LOCATIONS SHOWN ARE NOT GUARANTEED AND ANY FURTHER DEVELOPERS OR CONTRACTORS SHOULD NOT ONLY MAKE SUBSURFACE INVESTIGATIONS BUT SHOULD ALSO ALLOW FOR CONTINGENCIES WHICH MIGHT ARISE BY REASON OF ENCOUNTERING UNRECORDED LINES OR LINES BEING IN DIFFERENT LOCATIONS THAN INDICATED ON THIS PLAT.
4. THE HORIZONTAL DATUM FOR THIS SURVEY IS NC GRID NAD-83 AND THE VERTICAL DATUM IS NAVD-88.
5. ALL DISTANCES ARE HORIZONTAL GROUND.
6. AREA BY COORDINATE COMPUTATION.
7. SURVEY INFORMATION FROM THE SURVEYOR OF RECORD, LKC ENGINEERING, PLLC, JEFFREY L. GREEN,PLS; LICENSE #: L-3972; 140 AQUA SHED CT., ABERDEEN, NC 28315; PHONE 910-4201437.

VERTICAL SCALE: 1" = 5'

GRAPHIC SCALE 30 0 15 30 60 (IN FEET)

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NORTH CAROLINA PROFESSIONAL SEAL 043255 ENGINEER PHILIP A. PICERNO

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LKC Engineering Landscape Architecture Surveying
140 Auga Shed Ct., Aberdeen, NC 28315
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Harnett County Schools

Johnsonville Elementary School Addition/Renovation-Phase 2

18495 NC-27 W, Cameron, NC 28326

ENERGY STAR PARTNER

ID	DATE	DESCRIPTION
ISSUE DATE:		01-28-2022
PROJECT #:		02103.000
DRAWN BY:		MFL
CHECKED BY:		PAP

EXISTING SURVEY CONDITIONS AND DEMOLITION PLAN

C-101

NOTES:

1. ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON THE GENERAL NOTES, LEGEND AND ABBREVIATIONS SHEET, SHEET C-100 SHALL APPLY TO THIS PLAN.
2. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL HARNETT COUNTY STANDARDS AND SPECIFICATIONS.
3. CONTRACTOR SHALL ENSURE THAT THE EXISTING UTILITIES ARE LOCATED AND MARKED PRIOR TO INSTALLATION OF NEW UTILITIES.
4. THE PURPOSE OF THE PLAN IS FOR INFORMATIONAL PURPOSES ONLY. THOUGH THIS PLAN IS FROM AN ACTUAL FIELD SURVEY IT IS NOT AND SHOULD NOT BE CONSIDERED A RECORDABLE DOCUMENT.
5. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR WITH THE SURVEYOR OF RECORD PRIOR TO BEGINNING CONSTRUCTION. BENCHMARK IS AN EIP LOCATED AT THE SOUTHERN CORNER OF THE PROPERTY CLOSEST TO NC 27 W. HAVING AN ELEVATION OF 364.44. LOCATIONS OF EXISTING UTILITY LINES HAVE BEEN TAKEN FROM UTILITY RECORDS SUPPLEMENTED BY FIELD INSPECTIONS AND SHOULD INDICATE IN GENERAL THE TYPE OF UNDERGROUND FACILITIES NOW IN SERVICE. HOWEVER, LOCATIONS SHOWN ARE NOT GUARANTEED AND ANY FURTHER DEVELOPERS OR CONTRACTORS SHOULD NOT ONLY MAKE SUBSURFACE INVESTIGATIONS BUT SHOULD ALSO ALLOW FOR CONTINGENCIES WHICH MIGHT ARISE BY REASON OF ENCOUNTERING UNRECORDED LINES OR LINES BEING IN DIFFERENT LOCATIONS THAN INDICATED ON THIS PLAT.
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SITE DATA TABLE

JURISDICTION		HARNETT COUNTY, NORTH CAROLINA
PROPERTY OWNER		HARNETT COUNTY BOARD OF EDUCATION
OWNER ADDRESS		PO BOX 1029 LILLINGTON, NC 27546
OWNER CONTACT		DR. AARON FLEMING AFLEMING@HARNETT.K12.NC.US
HARNETT REGIONAL WATER CONTACT		GLENNN MCFADDEN GMCFADDEN@HARNETT.ORG
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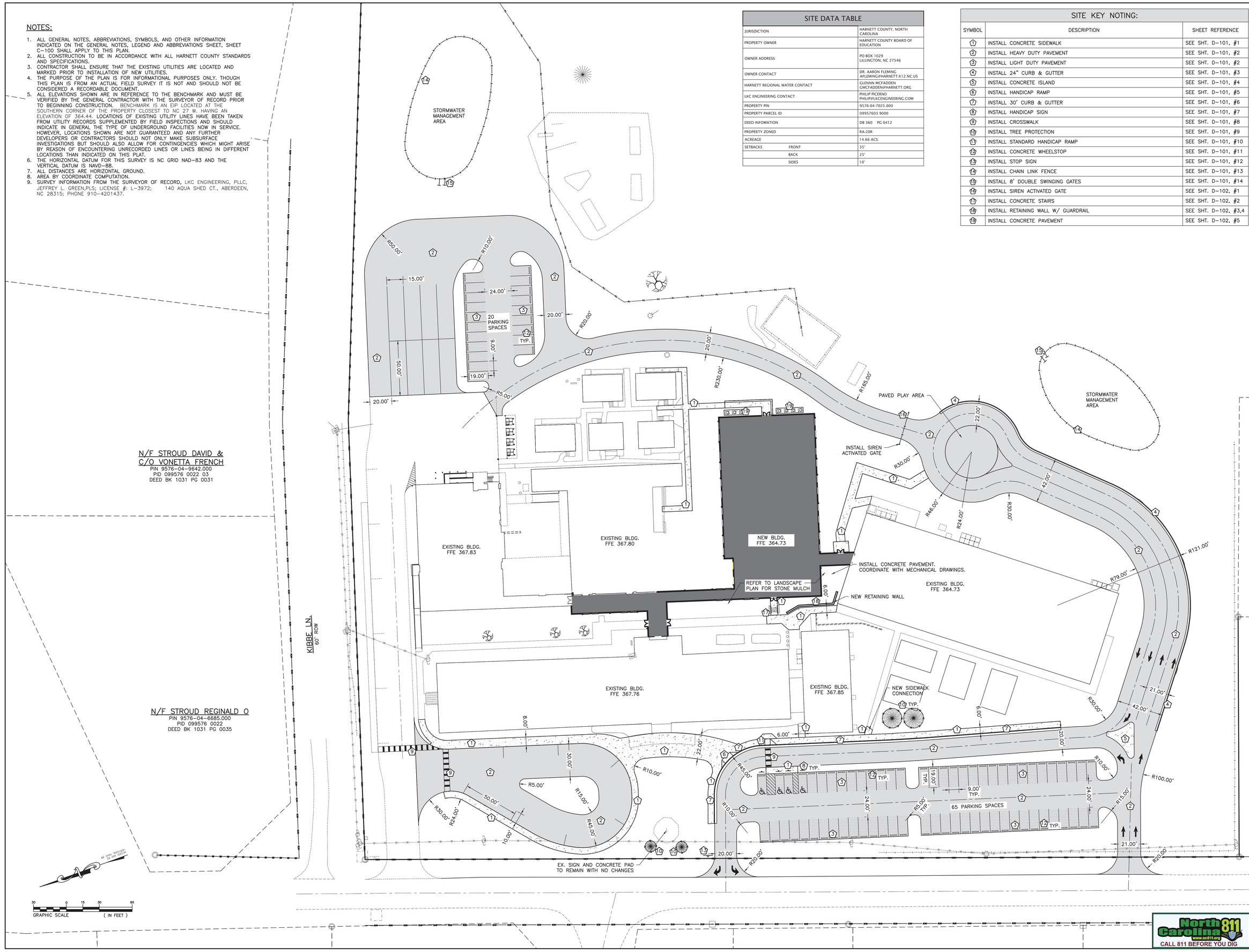
PROPERTY ZONED		RA-20R
ACREAGE		14.66 ACS.
SETBACKS	FRONT	35'
	BACK	25'
	SIDES	10'

SITE KEY NOTING:

SYMBOL	DESCRIPTION	SHEET REFERENCE
1	INSTALL CONCRETE SIDEWALK	SEE SHT. D-101, #1
2	INSTALL HEAVY DUTY PAVEMENT	SEE SHT. D-101, #2
3	INSTALL LIGHT DUTY PAVEMENT	SEE SHT. D-101, #2
4	INSTALL 24" CURB & GUTTER	SEE SHT. D-101, #3
5	INSTALL CONCRETE ISLAND	SEE SHT. D-101, #4
6	INSTALL HANDICAP RAMP	SEE SHT. D-101, #5
7	INSTALL 30" CURB & GUTTER	SEE SHT. D-101, #6
8	INSTALL HANDICAP SIGN	SEE SHT. D-101, #7
9	INSTALL CROSSWALK	SEE SHT. D-101, #8
10	INSTALL TREE PROTECTION	SEE SHT. D-101, #9
11	INSTALL STANDARD HANDICAP RAMP	SEE SHT. D-101, #10
12	INSTALL CONCRETE WHEELSTOP	SEE SHT. D-101, #11
13	INSTALL STOP SIGN	SEE SHT. D-101, #12
14	INSTALL CHAIN LINK FENCE	SEE SHT. D-101, #13
15	INSTALL 8' DOUBLE SWINGING GATES	SEE SHT. D-101, #14
16	INSTALL SIREN ACTIVATED GATE	SEE SHT. D-102, #1
17	INSTALL CONCRETE STAIRS	SEE SHT. D-102, #2
18	INSTALL RETAINING WALL W/ GUARDRAIL	SEE SHT. D-102, #3,4
19	INSTALL CONCRETE PAVEMENT	SEE SHT. D-102, #5



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18495 NC-27 W, Cameron, NC 28326

ENERGY STAR PARTNER

ID	DATE	DESCRIPTION

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CHECKED BY: PAP

SITE LAYOUT PLAN

C-201

DWQ CONSTRUCTION GENERAL PERMIT GROUND STABILIZATION REQUIREMENTS		
SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
Perimeter dikes, swales, ditches and slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
Slopes 3:1 or flatter	7 days	7-days for slopes greater than 50 feet in length
All other areas with slopes flatter than 4:1	7 days	None (except for perimeters and HQW Zones)

* "Extensions of time may be approved by the permitting authority based on weather or other site-specific condition that make compliance impracticable." (Sectio II.B(2)(b))

NOTES:

1. ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON SHEET C-01 SHALL APPLY TO THIS PLAN.
3. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR WITH THE SURVEYOR OF RECORD PRIOR TO BEGINNING CONSTRUCTION. BENCHMARKS IS AN EIP LOCATED AT THE SOUTHERN CORNER OF THE PROPERTY CLOSEST TO NC 27 W. HAVING AN ELEVATION OF 364.44.
4. PURSUANT TO G.S.113A-57(2), THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION CONTROL DEVICES OR STRUCTURES. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 7 DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY OR PERMANENT GROUND COVER, DEVICES OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION. PURSUANT TO G.S. 113A-57(3), PROVISIONS FOR PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION MUST BE ACCOMPLISHED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT. ALL SEEDED AREAS WILL BE FERTILIZED, RE-SEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATION COVER. IF ANY SEEDING FAILURE OCCURS, THOSE AREAS SHALL BE RE-SEEDED WITH RYE GRAIN FOR TEMPORARY STABILIZATION AND PREPARED FOR PERMANENT SEEDING.
5. STABILIZE ALL TEMPORARY OR PERMANENT DIVERSIONS WITHIN SEVEN DAYS OF CONSTRUCTION.
6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH HARNETT COUNTY STANDARDS AND SPECIFICATIONS.
7. SEE ARCHITECTURAL PLANS FOR ROOF DRAIN DOWNSPOUTS.

EROSION CONTROL SEQUENCE:

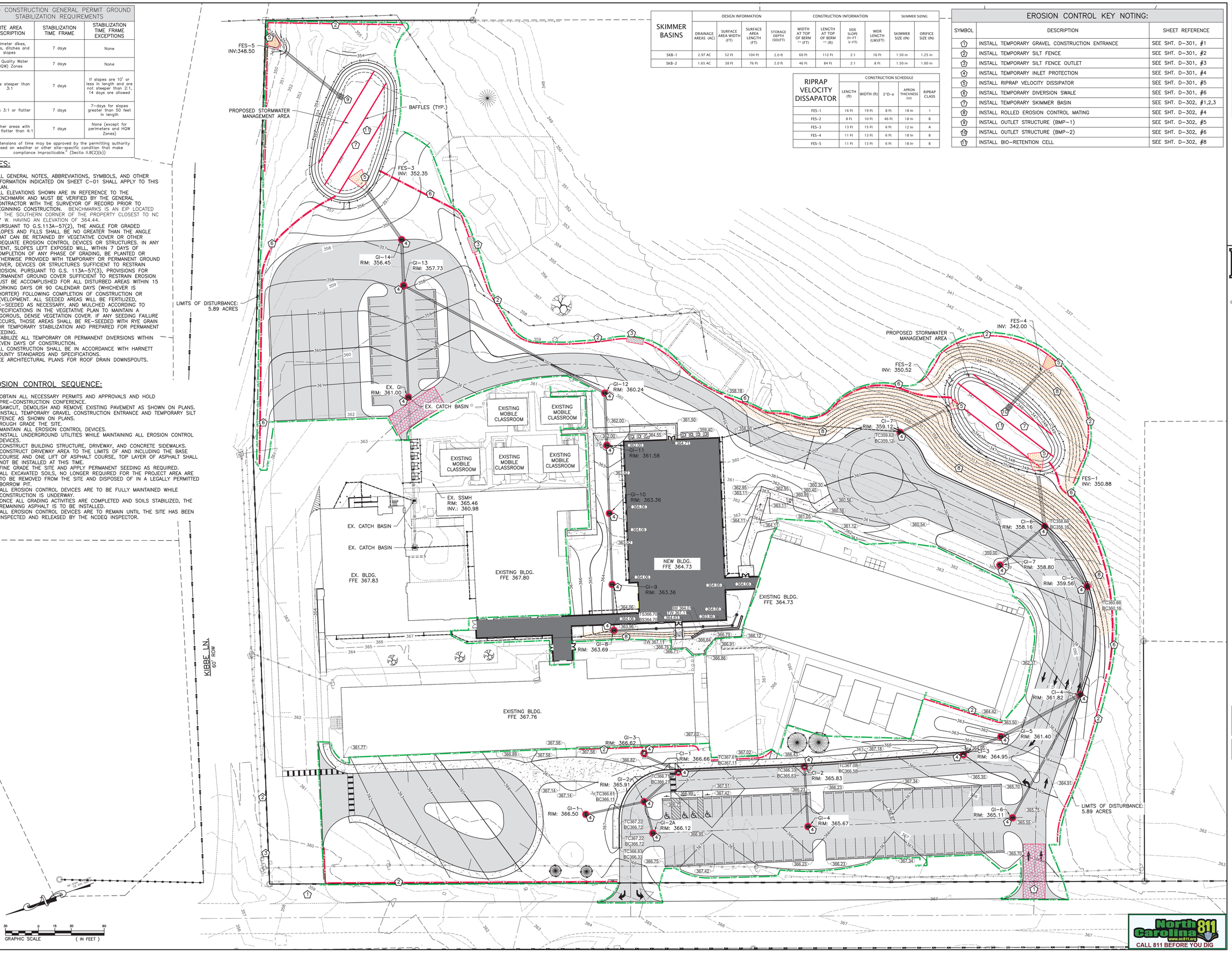
1. OBTAIN ALL NECESSARY PERMITS AND APPROVALS AND HOLD PRE-CONSTRUCTION CONFERENCE.
2. SAWCUT, DEMOLISH AND REMOVE EXISTING PAVEMENT AS SHOWN ON PLANS.
3. INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCE AND TEMPORARY SILT FENCE AS SHOWN ON PLANS.
4. ROUGH GRADE THE SITE.
5. MAINTAIN ALL EROSION CONTROL DEVICES.
6. INSTALL UNDERGROUND UTILITIES WHILE MAINTAINING ALL EROSION CONTROL DEVICES.
7. CONSTRUCT BUILDING STRUCTURE, DRIVEWAY, AND CONCRETE SIDEWALKS.
12. CONSTRUCT DRIVEWAY AREA TO THE LIMITS OF AND INCLUDING THE BASE COURSE AND ONE LIFT OF ASPHALT COURSE, TOP LAYER OF ASPHALT SHALL NOT BE INSTALLED AT THIS TIME.
13. FINE GRADE THE SITE AND APPLY PERMANENT SEEDING AS REQUIRED.
14. ALL EXCAVATED SOILS, NO LONGER REQUIRED FOR THE PROJECT AREA ARE TO BE REMOVED FROM THE SITE AND DISPOSED OF IN A LEGALLY PERMITTED BORROW PIT.
15. ALL EROSION CONTROL DEVICES ARE TO BE FULLY MAINTAINED WHILE CONSTRUCTION IS UNDERWAY.
16. ONCE ALL GRADING ACTIVITIES ARE COMPLETED AND SOILS STABILIZED, THE REMAINING ASPHALT IS TO BE INSTALLED.
17. ALL EROSION CONTROL DEVICES ARE TO REMAIN UNTIL THE SITE HAS BEEN INSPECTED AND RELEASED BY THE NCDEQ INSPECTOR.

SKIMMER BASINS	DESIGN INFORMATION				CONSTRUCTION INFORMATION				SKIMMER SIZING	
	DRAINAGE AREAS (AC)	SURFACE AREA WIDTH (FT)	SURFACE AREA LENGTH (FT)	STORAGE DEPTH (SD)(FT)	WIDTH AT TOP OF BERM ** (FT)	LENGTH AT TOP OF BERM ** (ft)	SIDE SLOPE (H-FT : V-FT)	WEIR LENGTH (LW)(FT)	SKIMMER SIZE (IN)	ORIFICE SIZE (IN)
SKB-1	2.97 AC	52 Ft	104 Ft	2.0 ft	60 Ft	112 Ft	2:1	16 Ft	1.50 in	1.25 in
SKB-2	1.65 AC	38 Ft	76 Ft	2.0 ft	46 Ft	84 Ft	2:1	8 Ft	1.50 in	1.00 in

RIPRAP VELOCITY DISSAPATOR	CONSTRUCTION SCHEDULE				
	LENGTH (ft)	WIDTH (ft)	3*D-o	APRON THICKNESS (in)	RIPRAP CLASS
FES-1	16 Ft	19 Ft	8 Ft	18 In	1
FES-2	8 Ft	10 Ft	46 Ft	18 In	B
FES-3	13 Ft	15 Ft	6 Ft	12 In	A
FES-4	11 Ft	13 Ft	6 Ft	18 In	B
FES-5	11 Ft	13 Ft	6 Ft	18 In	B

EROSION CONTROL KEY NOTING:

SYMBOL	DESCRIPTION	SHEET REFERENCE
1	INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCE	SEE SHT. D-301, #1
2	INSTALL TEMPORARY SILT FENCE	SEE SHT. D-301, #2
3	INSTALL TEMPORARY SILT FENCE OUTLET	SEE SHT. D-301, #3
4	INSTALL TEMPORARY INLET PROTECTION	SEE SHT. D-301, #4
5	INSTALL RIPRAP VELOCITY DISSIPATOR	SEE SHT. D-301, #5
6	INSTALL TEMPORARY DIVERSION SWALE	SEE SHT. D-301, #6
7	INSTALL TEMPORARY SKIMMER BASIN	SEE SHT. D-302, #1,2,3
8	INSTALL ROLLED EROSION CONTROL MATING	SEE SHT. D-302, #4
9	INSTALL OUTLET STRUCTURE (BMP-1)	SEE SHT. D-302, #5
10	INSTALL OUTLET STRUCTURE (BMP-2)	SEE SHT. D-302, #6
11	INSTALL BIO-RETENTION CELL	SEE SHT. D-302, #8



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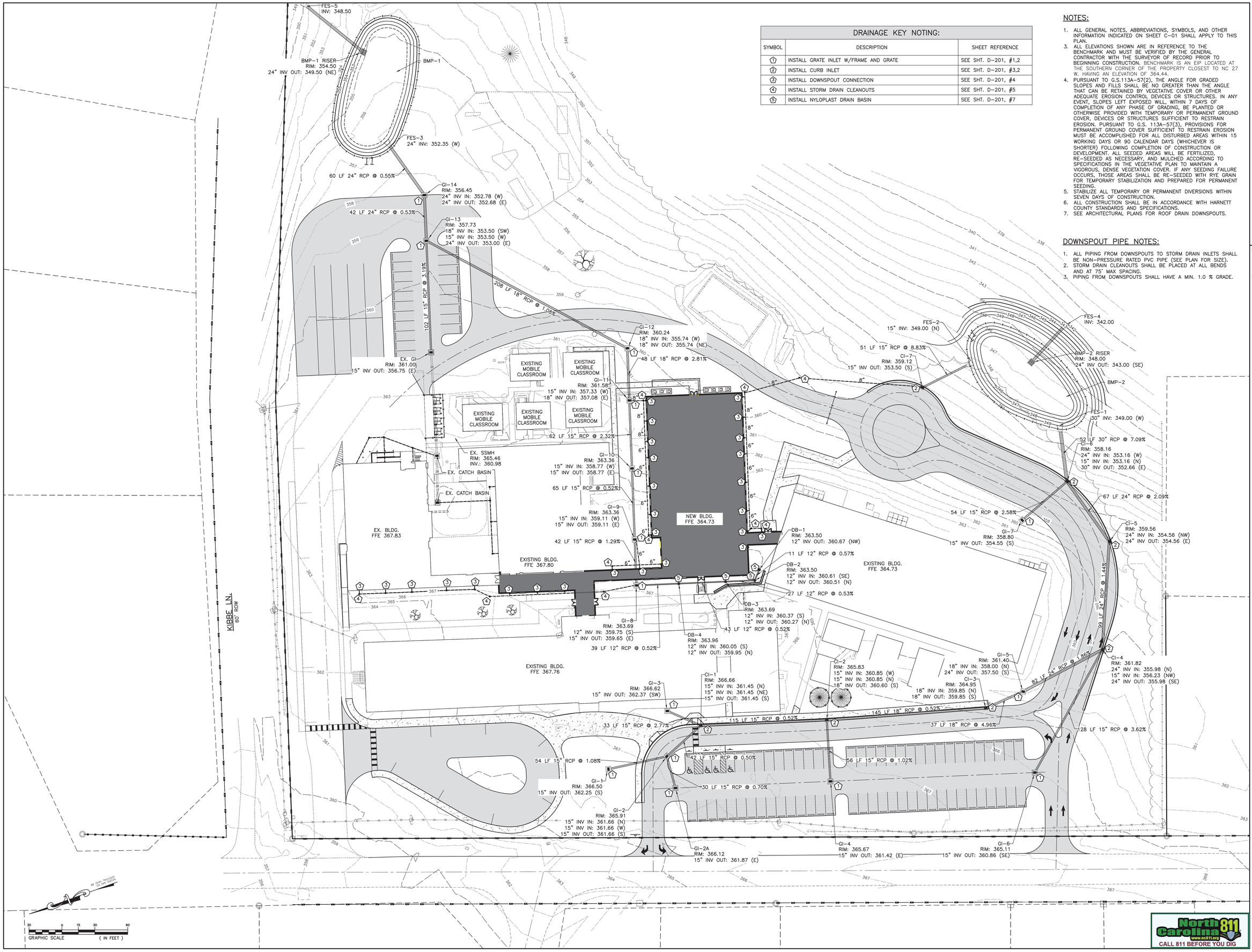
GRADING AND EROSION CONTROL PLAN

C-301



DRAINAGE KEY NOTING:

SYMBOL	DESCRIPTION	SHEET REFERENCE
1	INSTALL GRATE INLET W/FRAME AND GRATE	SEE SHT. D-201, #1,2
2	INSTALL CURB INLET	SEE SHT. D-201, #3,2
3	INSTALL DOWNSPOUT CONNECTION	SEE SHT. D-201, #4
4	INSTALL STORM DRAIN CLEANOUTS	SEE SHT. D-201, #5
5	INSTALL NYLOPLAST DRAIN BASIN	SEE SHT. D-201, #7

NOTES:

1. ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON SHEET C-01 SHALL APPLY TO THIS PLAN.
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5. STABILIZE ALL TEMPORARY OR PERMANENT DIVERSIONS WITHIN SEVEN DAYS OF CONSTRUCTION.
6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH HARNETT COUNTY STANDARDS AND SPECIFICATIONS.
7. SEE ARCHITECTURAL PLANS FOR ROOF DRAIN DOWNSPOUTS.

DOWNSPOUT PIPE NOTES:

1. ALL PIPING FROM DOWNSPOUTS TO STORM DRAIN INLETS SHALL BE NON-PRESSURE RATED PVC PIPE (SEE PLAN FOR SIZE).
2. STORM DRAIN CLEANOUTS SHALL BE PLACED AT ALL BENDS AND AT 75' MAX SPACING.
3. PIPING FROM DOWNSPOUTS SHALL HAVE A MIN. 1.0 % GRADE.

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DRAINAGE PLAN

C-401

NOTES:

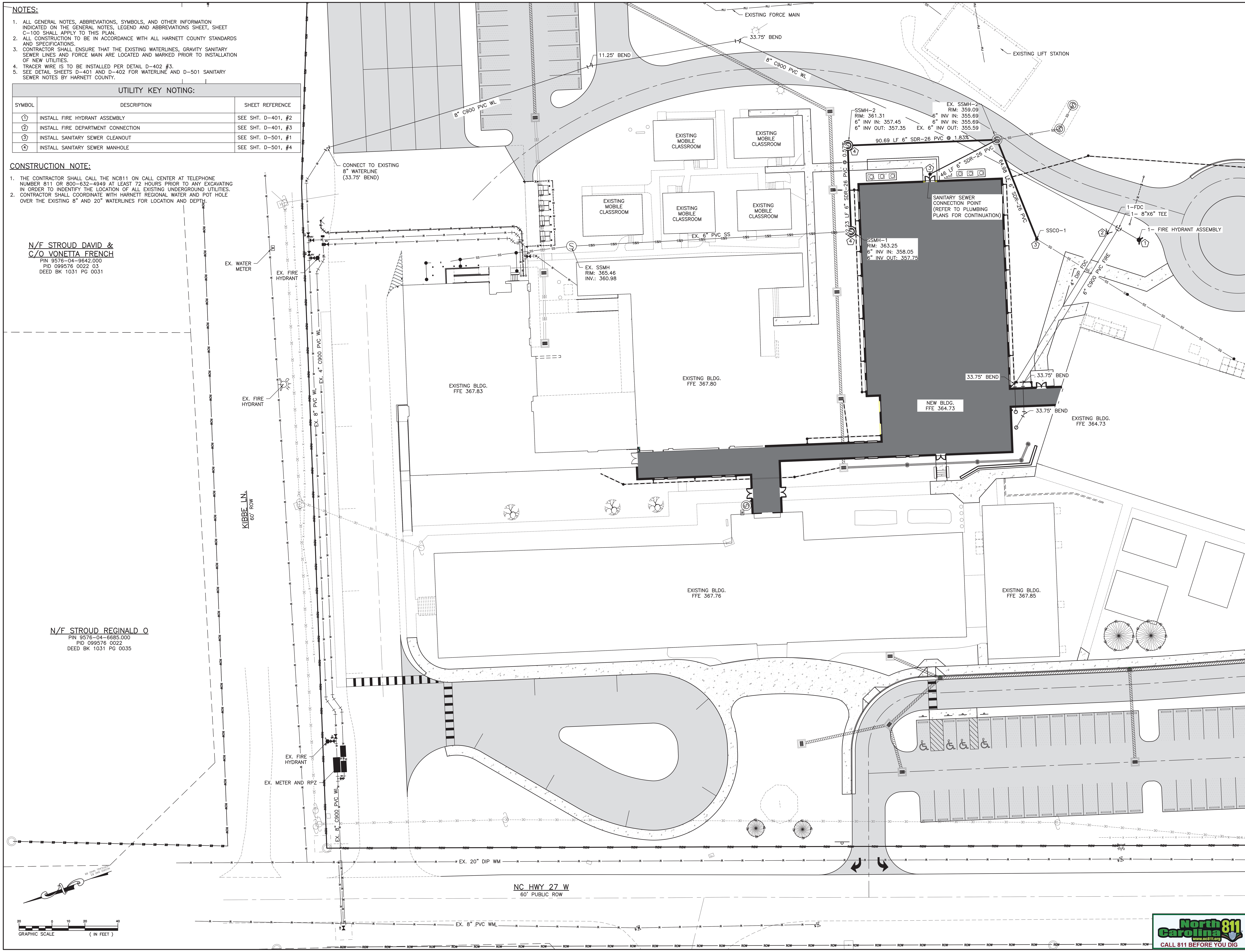
1. ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON THE GENERAL NOTES, LEGEND AND ABBREVIATIONS SHEET, SHEET C–100 SHALL APPLY TO THIS PLAN.
2. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL HARNETT COUNTY STANDARDS AND SPECIFICATIONS.
3. CONTRACTOR SHALL ENSURE THAT THE EXISTING WATERLINES, GRAVITY SANITARY SEWER LINES AND FORCE MAIN ARE LOCATED AND MARKED PRIOR TO INSTALLATION OF NEW UTILITIES.
4. TRACER WIRE IS TO BE INSTALLED PER DETAIL D–402 #3.
5. SEE DETAIL SHEETS D–401 AND D–402 FOR WATERLINE AND D–501 SANITARY SEWER NOTES BY HARNETT COUNTY.

UTILITY KEY NOTING:

SYMBOL	DESCRIPTION	SHEET REFERENCE
1	INSTALL FIRE HYDRANT ASSEMBLY	SEE SHT. D–401, #2
2	INSTALL FIRE DEPARTMENT CONNECTION	SEE SHT. D–401, #3
3	INSTALL SANITARY SEWER CLEANOUT	SEE SHT. D–501, #1
4	INSTALL SANITARY SEWER MANHOLE	SEE SHT. D–501, #4

CONSTRUCTION NOTE:

1. THE CONTRACTOR SHALL CALL THE NC811 ON CALL CENTER AT TELEPHONE NUMBER 811 OR 800–632–4949 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATING IN ORDER TO INDENTIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES.
2. CONTRACTOR SHALL COORDINATE WITH HARNETT REGIONAL WATER AND POT HOLE OVER THE EXISTING 8" AND 20" WATERLINES FOR LOCATION AND DEPTH.



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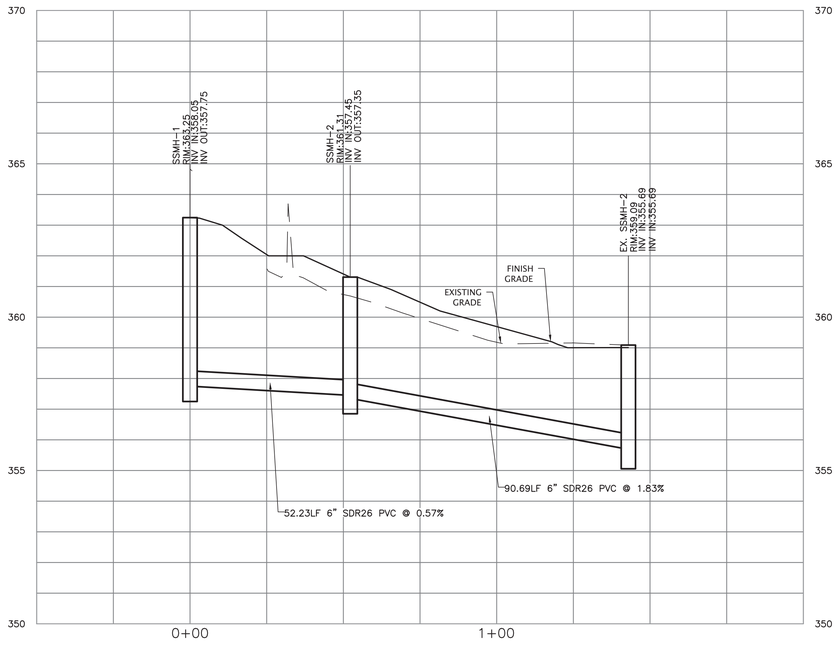
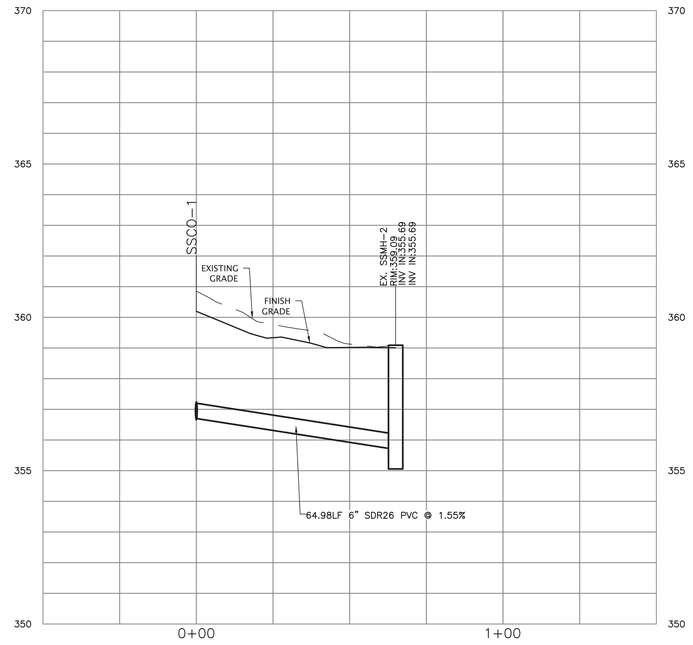
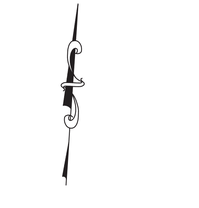
UTILITY PLAN



Sanitary Sewer 1



Sanitary Sewer 2



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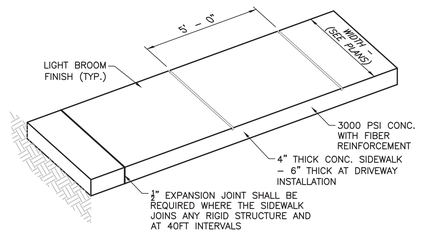
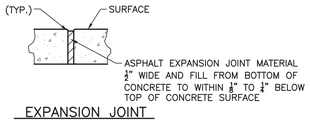
UTILITY PROFILES

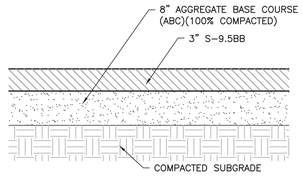
C-502



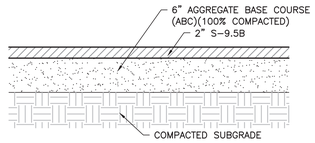


EXPANSION JOINT

1 CONCRETE SIDEWALK
NOT TO SCALE

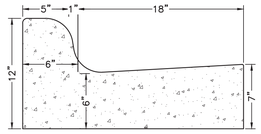


HEAVY DUTY

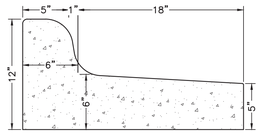


LIGHT DUTY

2 ASPHALT PAVEMENT SECTIONS
NOT TO SCALE



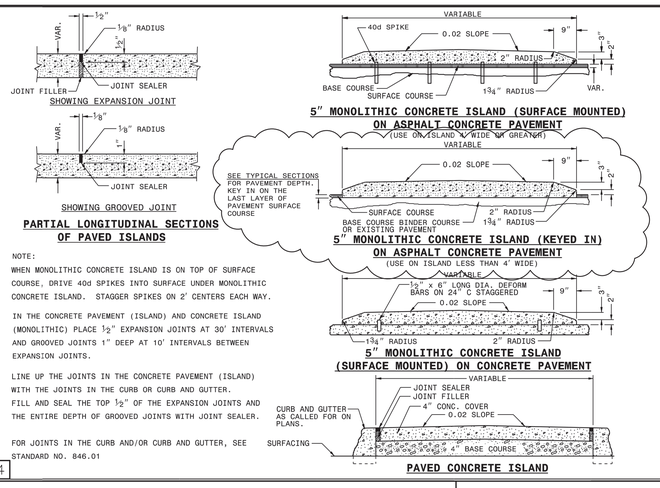
STANDARD SECTION



SPILL SECTION

NOTES:
1. ALL WORK AND MATERIALS SHALL COMPLY WITH NCDOT SECTION 846

3 24" CONCRETE CURB AND GUTTER
NOT TO SCALE



4

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DEPT. OF TRANSPORTATION
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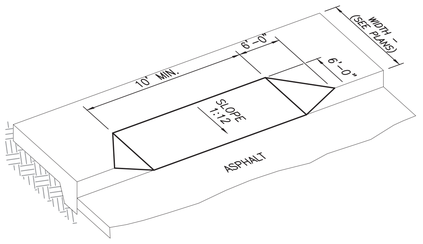
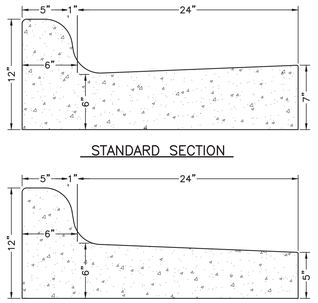
RALEIGH, N.C.
1-18

ROADWAY STANDARD DRAWING FOR
CONCRETE ISLANDS

SHEET 1 OF 1
852.01



5 HANDICAP RAMP AT DROP-OFF
NOT TO SCALE



STANDARD SECTION

SPILL SECTION

NOTES:
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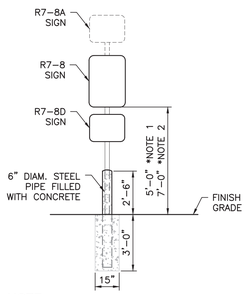
6 30" CONCRETE CURB AND GUTTER
NOT TO SCALE

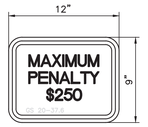


NOTE:

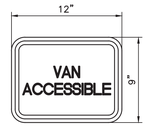
CONSTRUCTION AND INSTALLATION OF SIGNS AND POST SHALL COMPLY WITH GENERAL STATUTE 20-37.6

R7-8

SIGN APPROVED FOR USE UNDER GENERAL STATUTE 20-37.6



R7-8D



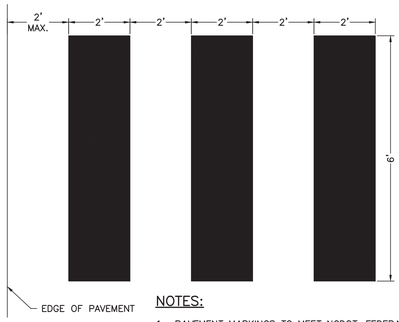
R7-8A

COLORS:

LEGEND AND BORDER – GREEN
WITH WHITE SYMBOL ON BLUE BACKGROUND
BACKGROUND – WHITE

*NOTE 1 – PEDESTRIAN PATH DOES NOT PASS UNDER OR AROUND SIGN
*NOTE 2 – PEDESTRIAN PATH GOES BY, UNDER OR AROUND SIGN

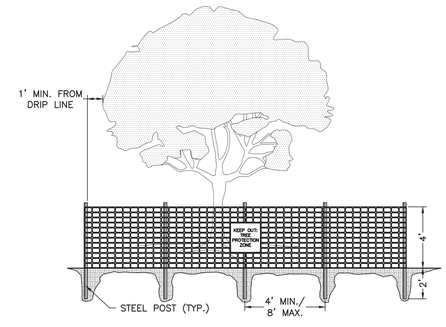
7 HANDICAP PARKING SIGN
NOT TO SCALE



NOTES:

1. PAVEMENT MARKINGS TO MEET NCDOT, FEDERAL HIGHWAY ADMINISTRATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS.
2. CROSSWALK SHALL BE PLACED CENTERED ON PEDESTRIAN TRAVEL PATH.

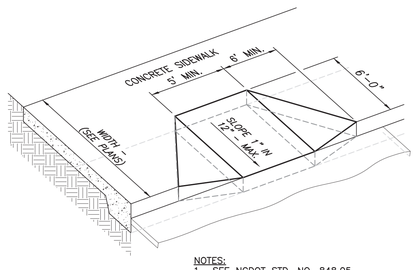
8 CROSSWALK
NOT TO SCALE



GENERAL NOTES:

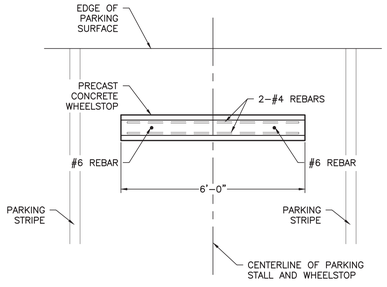
1. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING TREE PROTECTION FENCING AROUND ALL TREES WITHIN THE VICINITY OF THE CONSTRUCTION ACTIVITY SO AS TO PREVENT ROOT SYSTEM DAMAGE.
2. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO BEGINNING ANY CONSTRUCTION OR OTHER DEVELOPMENT ACTIVITY, AND SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE DURATION OF THE PROJECT UNTIL FINAL SITE INSPECTION.
3. TREE PROTECTION FENCING SHALL BE INSTALLED NO CLOSER THAN 12–INCHES OUTSIDE THE TREE DRIP–LINE. AREAS LOCATED WITHIN THE LIMITS OF THE TREE PROTECTION FENCING SHALL BE CONSIDERED A TREE PROTECTION ZONE. NO CONSTRUCTION, GRADING, EQUIPMENT, MATERIAL STORAGE, OR ANY OTHER ACTIVITY SHALL BE ALLOWED WITHIN THE TREE PROTECTION ZONES.
4. SIGNS INDICATING THE TREE PROTECTION ZONES SHALL BE INSTALLED ALONG THE PERIMETER OF THE TREE PROTECTION FENCING. SPACE SIGNS A MINIMUM OF ONE EVERY 300–FT. THE SIZE OF EACH SIGN SHALL BE A MINIMUM OF 2' X 2' AND BE VISIBLE FROM BOTH SIDES OF THE FENCE. SIGNS SHALL DISPLAY THE FOLLOWING LANGUAGE: "KEEP OUT: TREE PROTECTION ZONE"
5. ALL TREE PROTECTION MEASURES SHALL BE SUBJECT TO INSPECTION WITHOUT NOTICE.

9 TREE PROTECTION FENCING
NOT TO SCALE

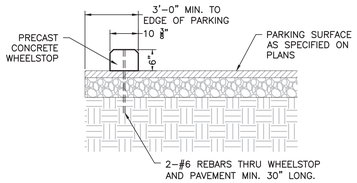


NOTES:
1. SEE NCDOT STD. NO. 848.05
2. CONTRACTOR SHALL MAINTAIN SIDEWALK THICKNESS AND REIFORCEMENT IN CONSTRUCTING THE HANDICAP RAMP.

10 HANDICAP RAMP – STANDARD
NOT TO SCALE

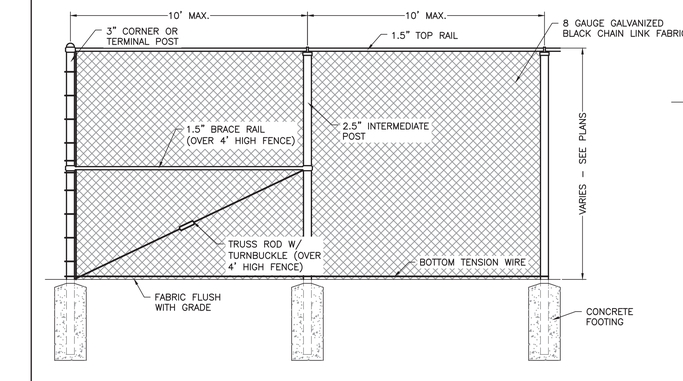


PLAN VIEW



SECTION VIEW

11 CONCRETE WHEELSTOP
NOT TO SCALE

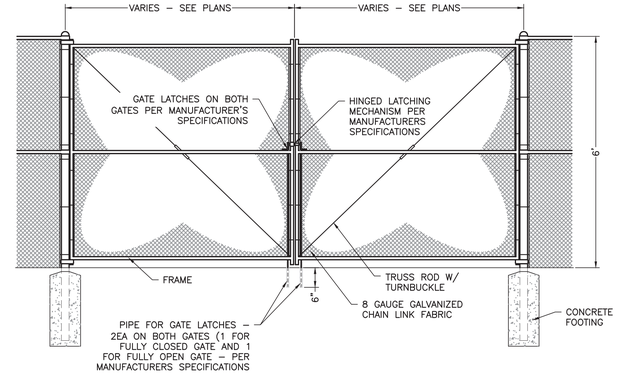


COLORS:

LEGEND: WHITE (RETRO REFLECTIVE)
BACKGROUND: RED (RETRO REFLECTIVE)

12 "STOP" SIGN
NOT TO SCALE

13 6' BLACK CHAIN LINK FENCE
NOT TO SCALE



14 DOUBLE SWING GATES
NOT TO SCALE

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Harnett County Schools
Johnsonville Elementary School Addition/Renovation-Phase 2
18495 NC-27 W, Cameron, NC 28326

ENERGY STAR PARTNER

ID	DATE	DESCRIPTION
ISSUE DATE:		01-28-2022
PROJECT #:		02103.000
DRAWN BY:		MFL
CHECKED BY:		PAP

SITE DETAILS

D-101

MA/MAT
HIGH-TRAFFIC DC BARRIER GATE OPERATOR

Ultra-Reliable, Durable, Superior Performance

LiftMaster® high-traffic DC powered barrier gate operators with Battery Backup keep traffic flowing and provide easy in and out access 24 hours a day. Rated for 6,000 cycles per day with an opening time of 2.5 seconds and constructed of corrosion resistant aluminum alloy, the Mega Arm/Mega Arm Tower are the ideal choice for high-traffic applications. The product's Security+ 2.0® radio technology provides unparalleled reliability and quick, secure access. Optional LED Barrier Arm provides exceptional visibility 24 hours a day.

Performance
- **Battery Backup** safeguards your property by providing up to up to 900 cycles* when the power is down.
- **Breakaway Arm** can be easily reinstalled if arm is hit, quickly restoring traffic control.
- **Continuous Duty DC Motor** is powerful and features soft starting and stopping for quiet, efficient operation.
- **Heavy-Duty Drive System with Commercial Gearbox** provides reliable, continuous operation.
- **Magnetic Limit Sensors** have no moving parts and are designed for high-cycle applications, so there's less wear and tear and you're assured dependable operation day-in and day-out.
- **Sequenced Access Management** provides control between barrier and slide/swing gate operators to maximize traffic flow.
- **K1 Relay** provides output signals to activate other accessories or operators during open/close cycles.

Safety and Security
- **Security+ 2.0 Patented Multi-Frequency Secure Radio Technology** virtually eliminates interference and gives you quick and secure access with enhanced range and performance.
- **Fire Department Compliant** selectable settings allow gate to auto open upon loss of AC power or battery depletion.
- **Anti-Tailgate Feature** prevents unauthorized access to your property.
- **Built-in Surge Suppression** protects against high-voltage spikes and surges.

*Basic set up with remote controls programmed with a 12 ft. Barrier Arm. Does not include power draw from added accessories. LiftMaster low power draw accessories recommended to extend cycles on Battery Backup.

Optional Accessories:

12 ft. and 17 ft. LED Barrier Arms (MALED12/MALED17)
Aluminum arm with integrated red LED lights on one side and red/white DOT tape on both sides. Provides exceptional visibility 24 hrs. a day. Additional barrier arms are available, see back side.

1-Button Encrypted DIP Switch Remote Control (811LM)
Cost effective solution with Security+ 2.0 for applications requiring a large number of remote controls for a common entrance.

2-Button and 4-Button Learning Remote Controls (892LT/894LT)
Independent button programming with Security+ 2.0. Also compatible with Security+® 315MHz and 390MHz frequencies. Can clone existing DIP Switch Remote Controls.

Commercial Access Control Receiver (STAR1000)
Stand alone commercial receiver with Security+ 2.0 provides enhanced range and reliability. Holds up to 1,000 remote controls.

LiftMaster Loop Detector (LD7LP)
Automatic sensitivity settings for easy vehicle detection. Power efficient design ideal for battery backup.

Retro-Reflective Photo Eye (RETROAB)
Safeguards your property. Single-sided means no expensive trenching or wiring.

LiftMaster.com

LiftMaster

MA/MAT
HIGH-TRAFFIC DC BARRIER GATE OPERATOR

FEATURES
DUAL-GATE OPERATION
Works in conjunction with another barrier gate operator.

BUILT-IN 110V CONVENIENCE OUTLET
Simplifies adding/powering up accessory devices. Save the expense of having to add an extra outlet.

UNIVERSAL CONTROLLER WITH 8 INPUTS
Allows for the connection of a full range of optional external devices.

RIGHT- OR LEFT-HANDED OPERATION
Provides flexibility to fit your application and ease of installation.

SLIP CLUTCH OPTION
Allows arm to be manually pushed open without damaging the shear pin. Arm automatically resets to normal closed position upon receiving activation.

850LM RADIO RECEIVER INCLUDED
Stores up to 90 remote controls.

WARRANTY
Two years parts.
Ten years frame.

SPECIFICATIONS
OPERATOR SPEED
2.5 seconds to open or close

POWER
120V / 220V applications

ACCESSORY POWER
24VDC 500 mA

OPERATOR WEIGHT (without arm)
MADCBB3 – 89 lbs.
MATDCBB3 – 113 lbs.

UL LISTED
UL 325 & UL 991 – Class I, II, III, IV

CONSTRUCTION
GEAR REDUCTION
60:1 reducer in synthetic oil bath

MOTOR
1/2 HP equivalent
Continuous-duty 24VDC / 800 RPM

CHASSIS
Powder coated 1/4 in. aluminum alloy

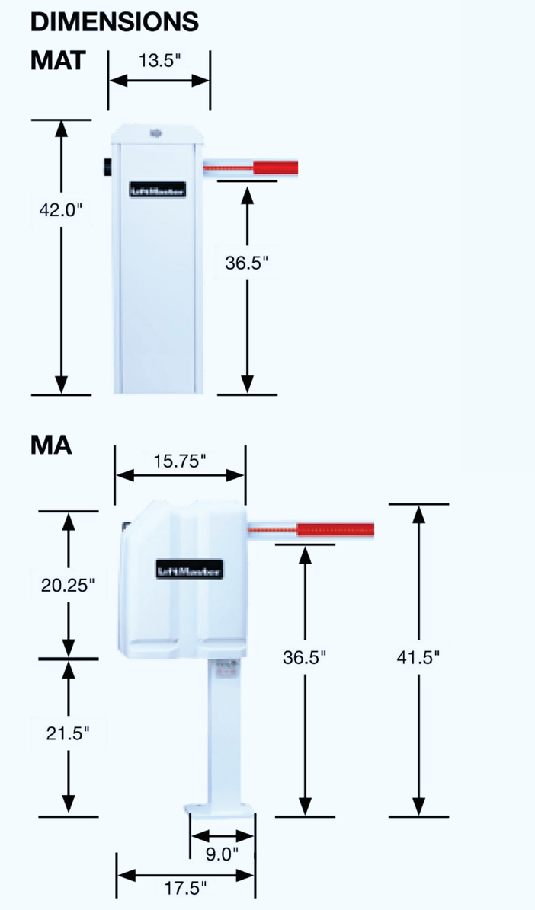
COVER
MA – UV-resistant polyethylene
MAT – Full aluminum cabinet

RECOMMENDED CAPACITIES

HP	MAX. ARM LENGTH (ft.)	CYCLES/DAY
1/2	12 ft. & 17 ft. aluminum arm 14 ft. soft-padded arm	6,000

LiftMaster® gate operators comply with UL 325 standards. External entrapment devices must be added to meet UL 325 standards. Your installer will recommend suitable entrapment devices such as photoelectric sensors or edge sensors.

DIMENSIONS



LED BARRIER ARM SPECIFICATIONS
ARM MATERIAL
Aluminum

OPERATING VOLTAGE
12VDC

LAMP TYPE
LED 3528 IP68 Silica gel filled

COLOR
Red/White

POWER
14.4 W/m

OPERATING TEMPERATURE
-13°F (-25°C) to 140°F (60°C)

UL LISTED
UL 325 & UL 991 – Class I, II, III, IV

WARRANTY
Six month limited.

MALED12
Arm
12 ft. x 3 in. x 2 1/4 in., 17 lbs.
(10 ft. 9-3/4 in. installed)
Contents
(1) 12 ft. Arm with LED
(1) Installation Kit

MALED17
Arm
17 ft. x 3 in. x 2 1/4 in., 25 lbs.
(14 ft. installed)
Requires Counterweight (MALEDCW)
Contents
(1) 17 ft. Arm with LED
(1) Installation Kit

MALEDCW
Counterweight
14 in. x 2 3/4 in. x 2 1/8 in., 11 lbs.

ADDITIONAL ARM ACCESSORIES**

White Arm with:	Yellow and Black Stripes	Red and White Retro-Reflectorized DOT Tape	Yellow Padding	Articulating with Yellow and Black Stripes
Arm Length	Aluminum Arm	Aluminum Arm	Aluminum Arm	PVC Arm
9 ft.	-	-	-	MA034‡ (cut to length)
10 ft.	-	-	-	MA024-10 (cut to length)
12 ft.	MA024 (10 ft. 9-3/4 in. installed)	MA024RDOT (10 ft. 9-3/4 in. installed)	MA025 (N/A)	-
14 ft.	-	-	MA028† (N/A)	-
17 ft.	MA116*** (14 ft. installed)	MA116RDOT*** (14 ft. installed)	-	-

**All Arms shipped as single piece. Installer cuts down to meet site requirements.
***Arm requires counterweight (MA117)
†Requires collar adaptor (MA031)
‡Requires Hardware kit

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LiftMaster

NOTE:

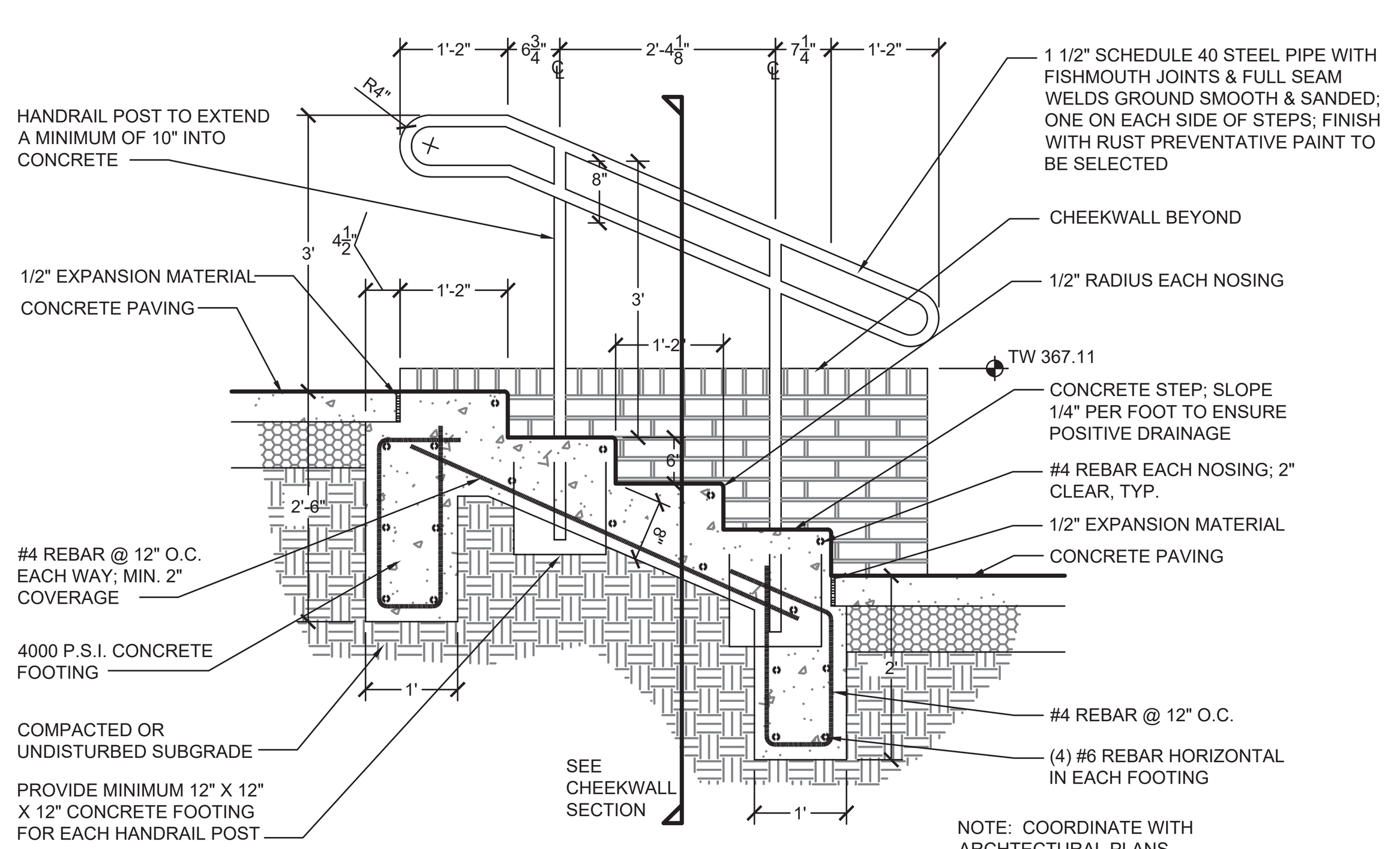
INSTALL MA/MAT LEVER ARM GATE SYSTEM OR APPROVED EQUAL.

D103.5 FIRE APPARATUS ACCESS ROAD GATES

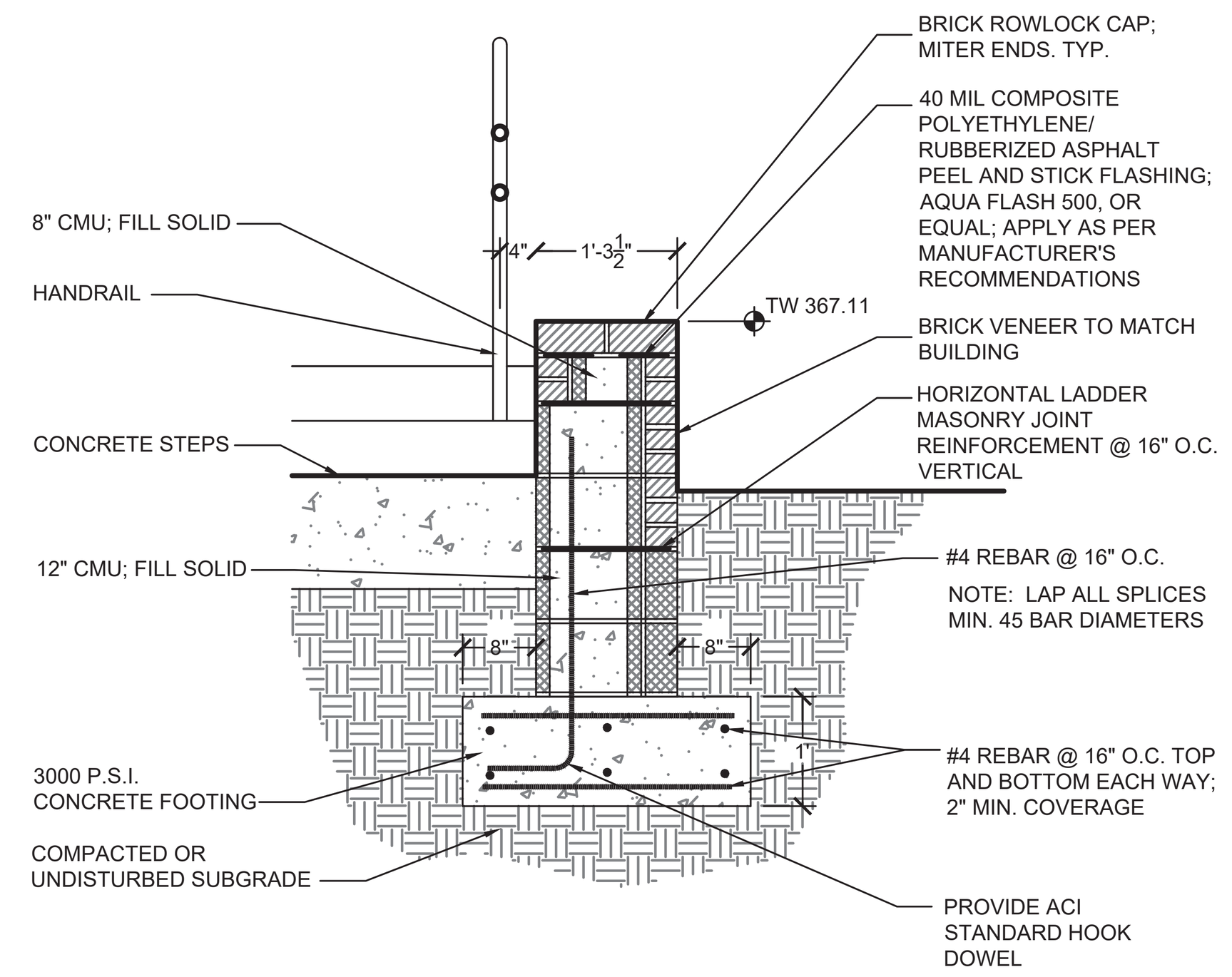
GATES SECURING THE FIRE APPARTUS ACCESS ROADS SHALL COMPLY WITH ALL OF THE FOLLOWING CRITERIA:

1. WHERE A SINGLE GATE IS PROVIDED, THE GATE WIDTH SHALL BE NOT LESS THAN 20 FEET (6096 mm). WHERE A FIRE APPARATUS ROAD CONSISTS OF A DIVIDED ROADWAY, THE GATE WIDTH SHALL BE NOT LESS THAN 12 FEET (3658 mm).
2. GATES SHALL BE OF THE SWINGING OR SLIDING TYPE.
3. CONSTRUCTION OF GATES SHALL BE OF MATERIALS THAT ALLOW MANUAL OPERATION BY ONE PERSON.
4. GATE COMPONENTS SHALL BE MAINTAINED IN AN OPERATIVE CONDITION AT ALL TIMES AND REPLACED OR REPAIRED WHEN DEFECTIVE.
5. ELECTRIC GATES SHALL BE EQUIPPED WITH A MEANS OF OPENING THE GATE BY FIRE DEPARTMENT PERSONNEL FOR EMERGENCY ACCESS. EMERGENCY OPENING DEVICES SHALL BE APPROVED THE FIRE CODE OFFICIAL.
6. METHODS OF LOCKING SHALL BE SUBMITTED FOR APPROVAL BY THE FIRE CODE OFFICIAL.
7. ELECTRIC GATE OPERATORS, WHERE PROVIDED, SHALL BE LISTED IN ACCORDANCE WITH UL 325.
8. GATES INTENDED FOR AUTOMATIC OPERATION SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED TO COMPLY WITH THE REQUIREMENTS OF ASTM F2200.

1

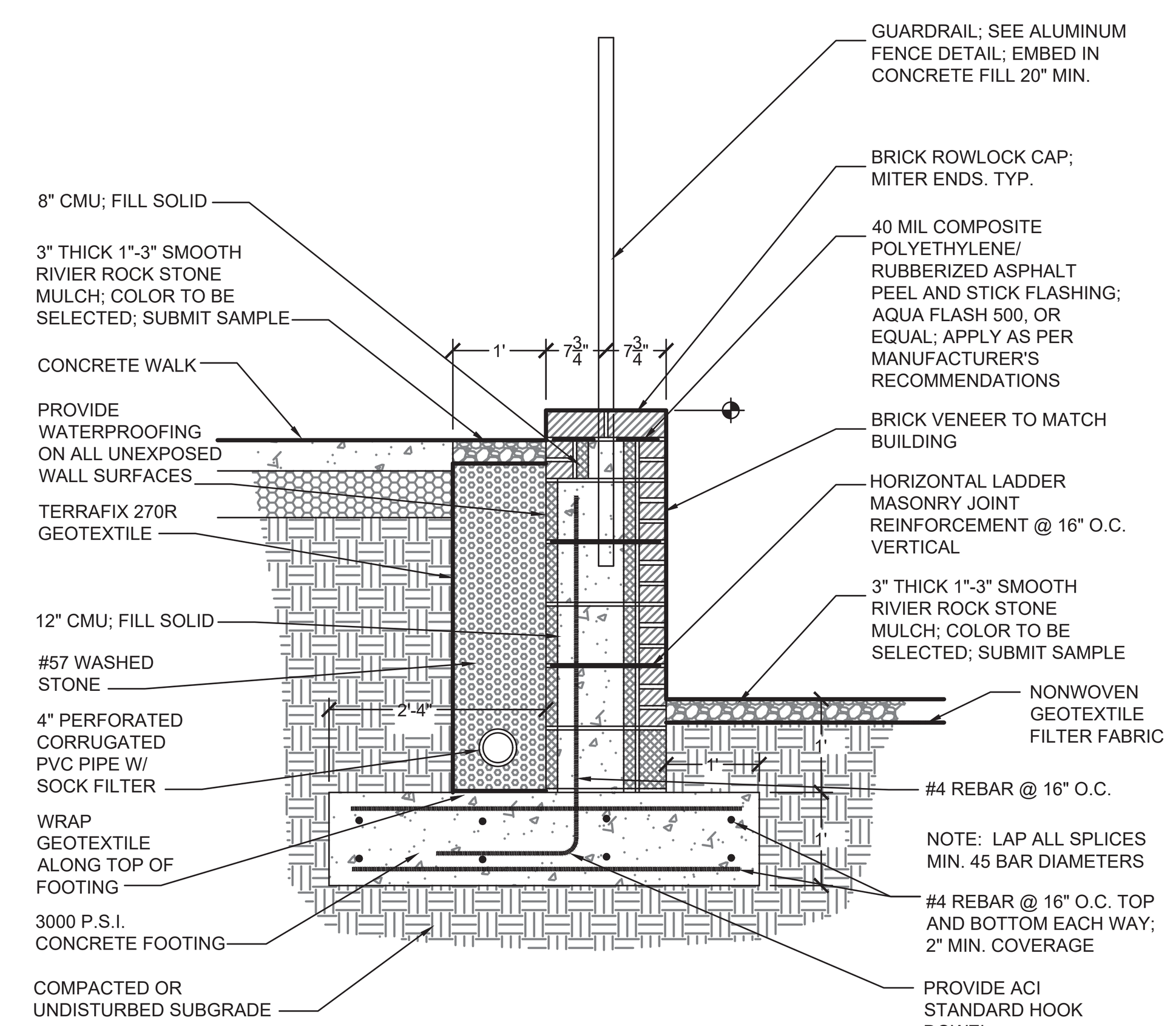


STEP SECTION

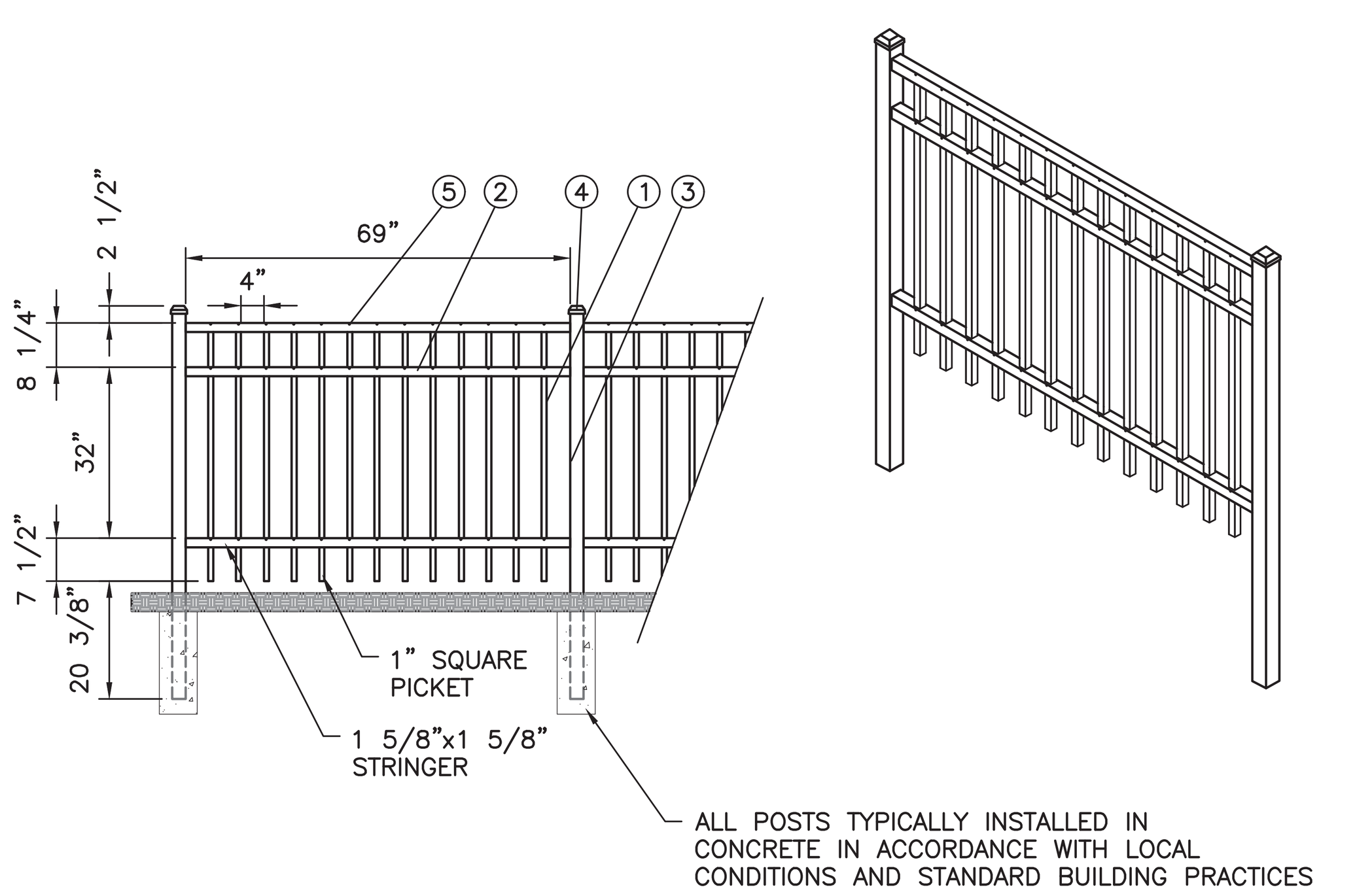


CHEEKWALL SECTION

2 CONCRETE STEPS



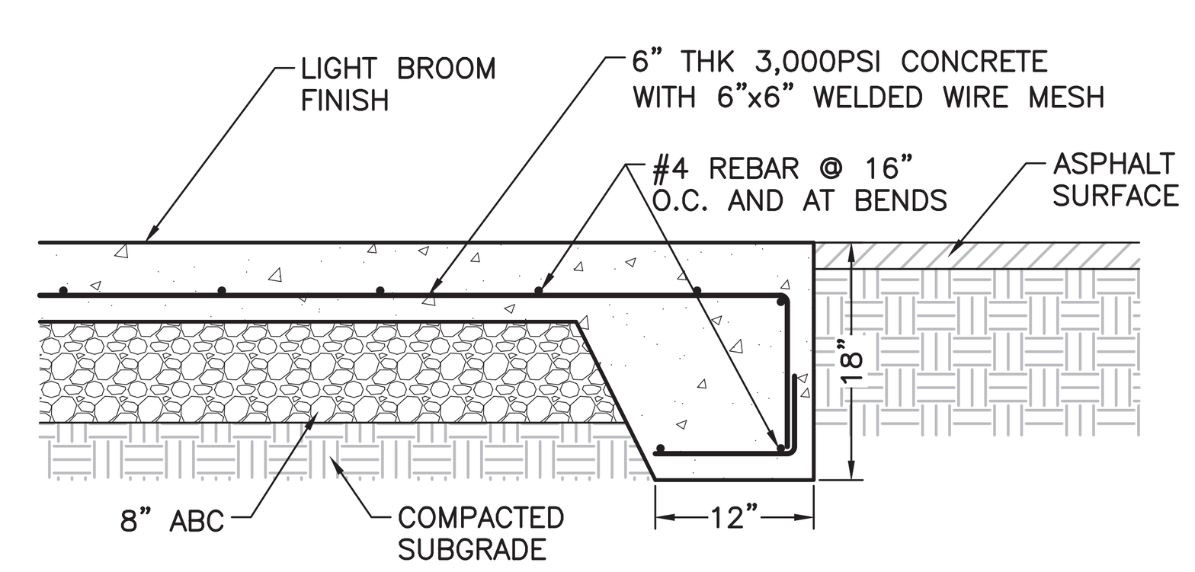
3 RETAINING WALL



FENCE PARTS		
ITEM	DESCRIPTION	QTY/ SECTION
1	I202 – 48 PICKET	13
2	70 1/2" – 13 HOLE IND. STRINGER	2
3	2 1/2" POST	2
4	2 1/2" ALUMINUM POST CAP	2
5	70 1/2" – 13 HOLE IND. HEADER	1

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. ALL DIMENSIONS ARE CONSIDERED TRUE AND REFLECT MANUFACTURER'S SPECIFICATIONS.
3. JERITH MANUFACTURING LLC OR APPROVED EQUAL.

4 ALUMINUM FENCE/ GUARDRAIL



NOTE:
CONTROL JOINTS TO BE PLACE AT 20' INTERVALS

5 CONCRETE PAVEMENT

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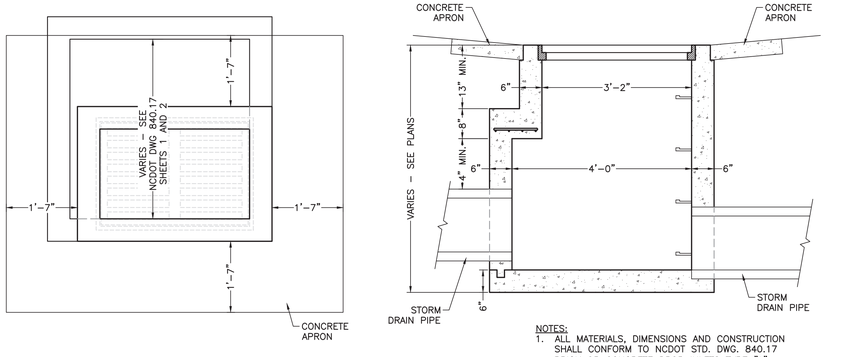
Harnett County Schools
Johnsonville Elementary School
Addition/Renovation-Phase 2
18495 NC-27 W, Cameron, NC 28326

ENERGY STAR PARTNER

ID	DATE	DESCRIPTION
ISSUE DATE:		01-28-2022
PROJECT #:		02103.000
DRAWN BY:		MFL
CHECKED BY:		PAP

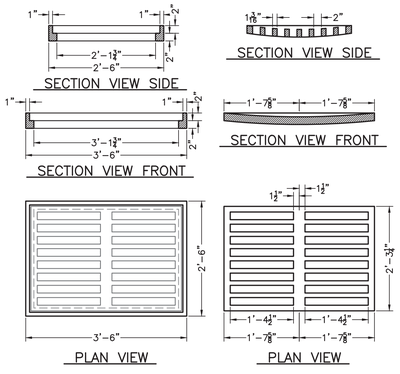
SITE DETAILS

D-102

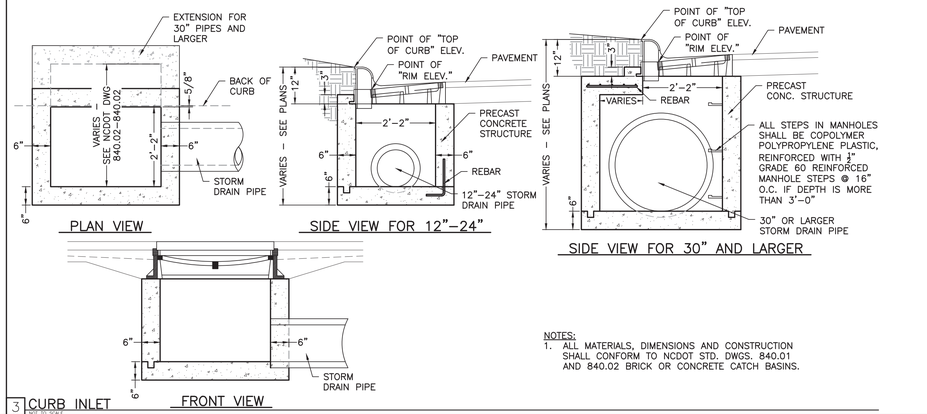


NOTES:
1. ALL MATERIALS, DIMENSIONS AND CONSTRUCTION SHALL CONFORM TO NCDOT STD. DWG. 840.17 BRICK OR CONCRETE DROP INLETS TYPE "A".

1 GRATE INLET
SCALE: NONE

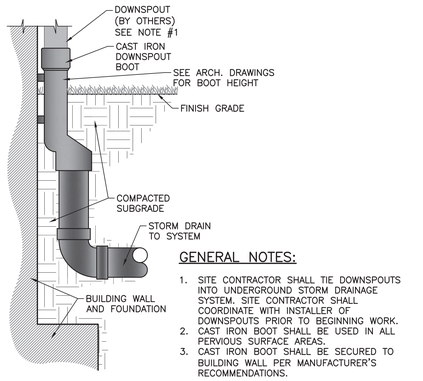


2 24"x36" FRAME AND GRATE
SCALE: NONE



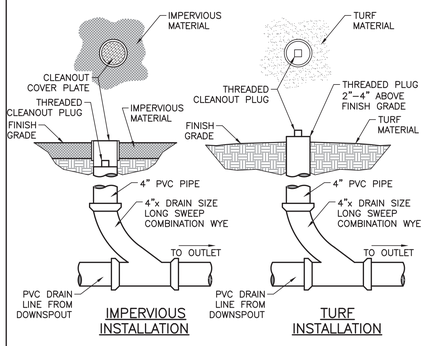
NOTES:
1. ALL MATERIALS, DIMENSIONS AND CONSTRUCTION SHALL CONFORM TO NCDOT STD. DWGS. 840.01 AND 840.02 BRICK OR CONCRETE CATCH BASINS.

3 CURB INLET
SCALE: NONE



GENERAL NOTES:
1. SITE CONTRACTOR SHALL TIE DOWNSPOUTS INTO UNDERGROUND STORM DRAINAGE SYSTEM. SITE CONTRACTOR SHALL COORDINATE WITH INSTALLER OF DOWNSPOUTS PRIOR TO BEGINNING WORK.
2. CAST IRON BOOT SHALL BE USED IN ALL PERVIOUS SURFACE AREAS.
3. CAST IRON BOOT SHALL BE SECURED TO BUILDING WALL PER MANUFACTURER'S RECOMMENDATIONS.

4 DOWNSPOUT TO DRAINAGE TIE-IN
SCALE: NONE



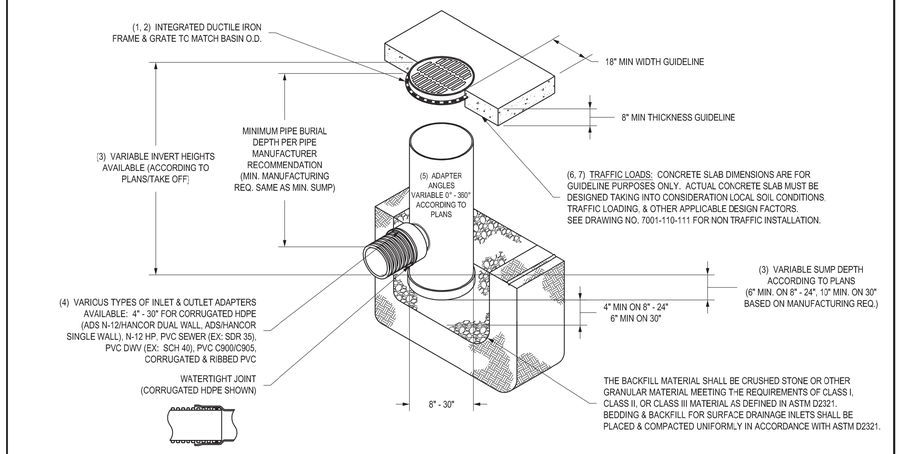
5 STORM DRAIN CLEANOUT
SCALE: NONE

STORM DRAIN PIPE NOTES:
1. ALL STORM DRAINAGE SHALL BE RCP UNLESS OTHERWISE INDICATED.
2. STORM DRAINAGE PIPING IN ANY NCDOT RIGHT-OF-WAY SHALL CLASS 4 OR BETTER AND STAMPED FOR NCDOT.
3. STORM DRAINAGE PIPING IN NON-NCDOT RIGHT-OF-WAY UNDER PAVEMENT SHALL BE CLASS 4 OR BETTER, STAMP NOT REQUIRED.
4. COMPLETE RUNS OF STORM DRAINAGE PIPING NOT UNDER PAVEMENT SHALL BE CLASS 3 OR BETTER.

STORM DRAIN PIPE SEPARATION NOTES:
1. THE MINIMUM VERTICAL CLEARANCE BETWEEN STORM DRAINAGE AND SANITARY SEWER LINES SHALL BE 24-INCHES UNLESS DUCTILE IRON IS SPECIFIED FOR THE SANITARY SEWER LINES.
2. STORM DRAINAGE PIPE HAVING WATER MAINS CROSSING OVER, OR UNDER MUST MAINTAIN A VERTICAL SEPARATION OF AT LEAST 24-INCHES. IN ADDITION, IF A WATER MAIN MUST CROSS UNDER A STORM DRAINAGE PIPE, THE WATER MAIN SHALL BE MADE OF DUCTILE IRON FOR A MINIMUM OF 10 FEET ON BOTH SIDES OF THE CROSSING.

6 STORM DRAIN PIPE NOTES
SCALE: NONE

NYLOPLAST DRAIN BASIN WITH STANDARD GRATE



1 - 8" - 30" STANDARD GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - 12" - 30" FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05. 8" & 10" STANDARD GRATES FIT DIRECTLY ONTO DRAIN BASINS WITH THE USE OF A PVC BODY TOP. SEE DRAWING NO. 7001-110-045.
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065.
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N- 2/HANCOR DUAL WALL), N-12 HP, & PVC SEWER (4" - 24").
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 1° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.
6 - 12" - 30" STANDARD GRATES SHALL MEET H-20 LOAD RATING.
7 - 8" & 10" STANDARD GRATES ARE RATED FOR LIGHT DUTY APPLICATIONS ONLY; NO CONCRETE COLLAR NEEDED FOR LIGHT DUTY RATING.

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DATE 1-23-06			
REVISED BY NMH	PROJECT NO./NAME	TITLE	DRAIN BASIN WITH STANDARD GRATE QUICK SPEC INSTALLATION DETAIL
DATE 03-11-16			
DWG SIZE A	SCALE 1:40 SHEET 1 OF 1	DWG NO. 7001-110-144	REV H

7

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Harnett County Schools
Johnsonville Elementary School Addition/Renovation-Phase 2
18495 NC-27 W, Cameron, NC 28326

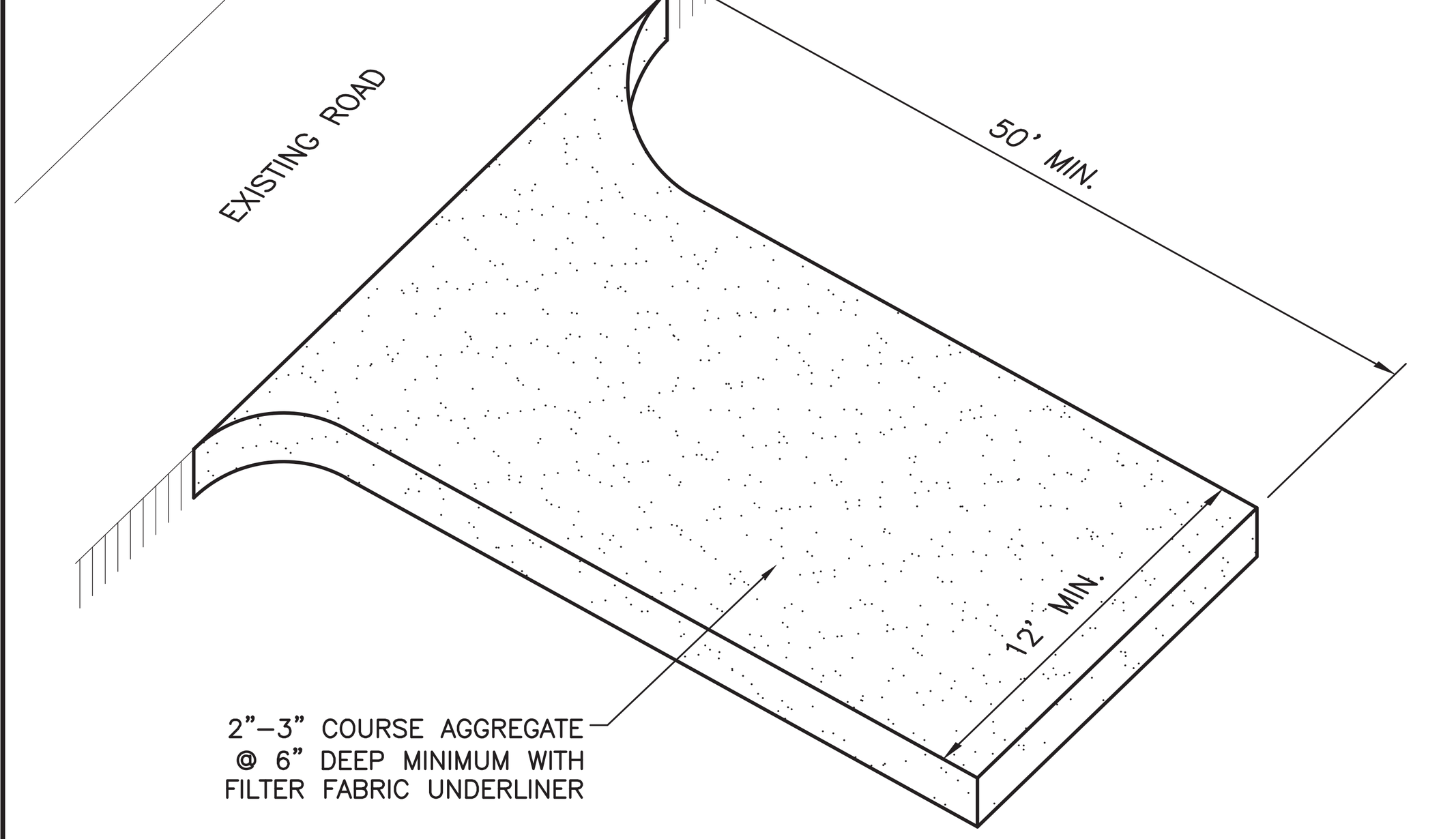
ENERGY STAR PARTNER

ID	DATE	DESCRIPTION

ISSUE DATE: 01-28-2022
PROJECT #: 02103.000
DRAWN BY: MFL
CHECKED BY: PAP

DRAINAGE DETAILS

D-201



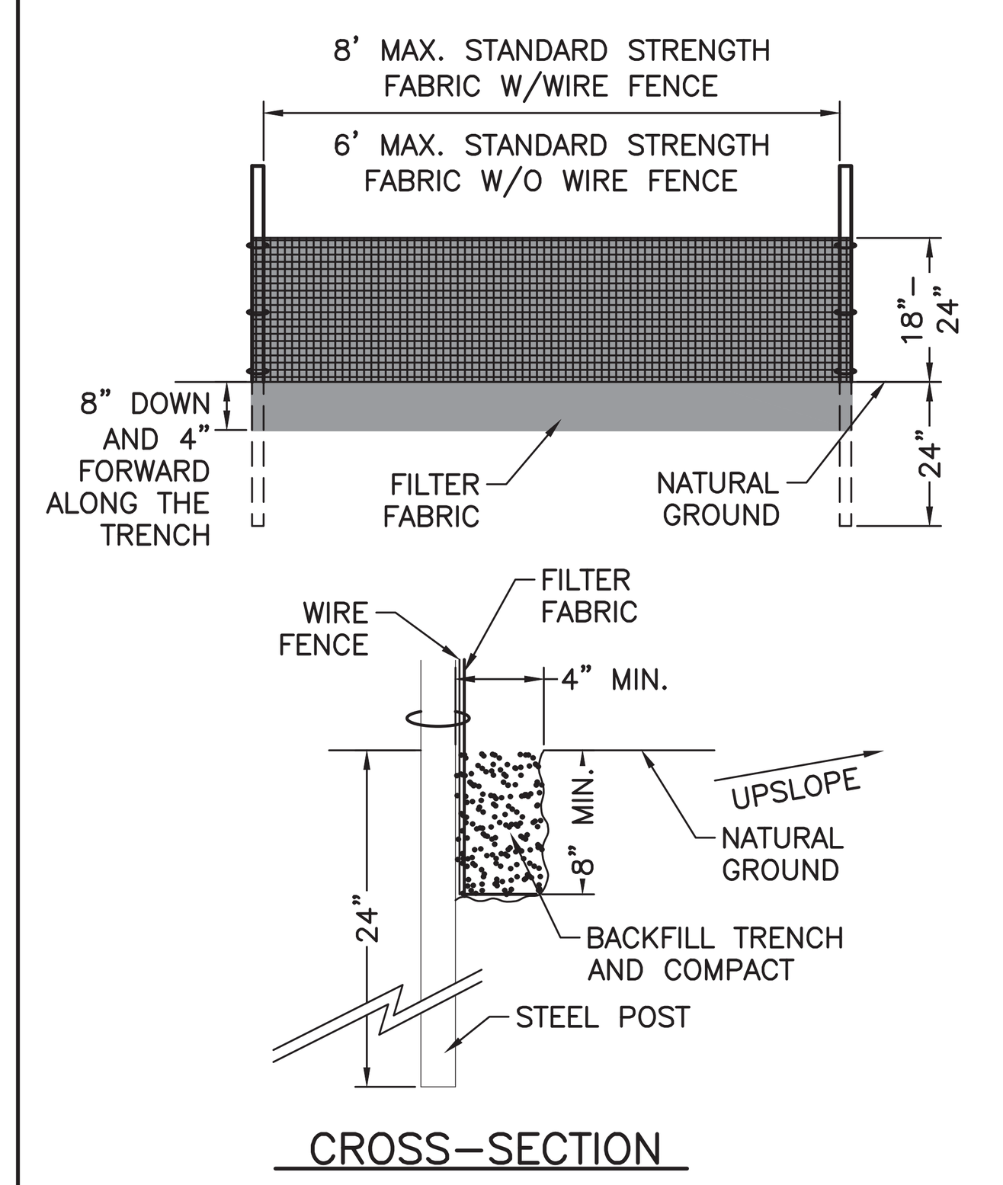
CONSTRUCTION SPECIFICATIONS:

1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT.
2. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS AND SMOOTH IT.
3. PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
4. USE GEOTEXTILE FABRICS BECAUSE THEY IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.

MAINTENANCE:

MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH 2" STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED OR TRACKED ONTO PUBLIC ROADWAYS.

1 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
NOT TO SCALE



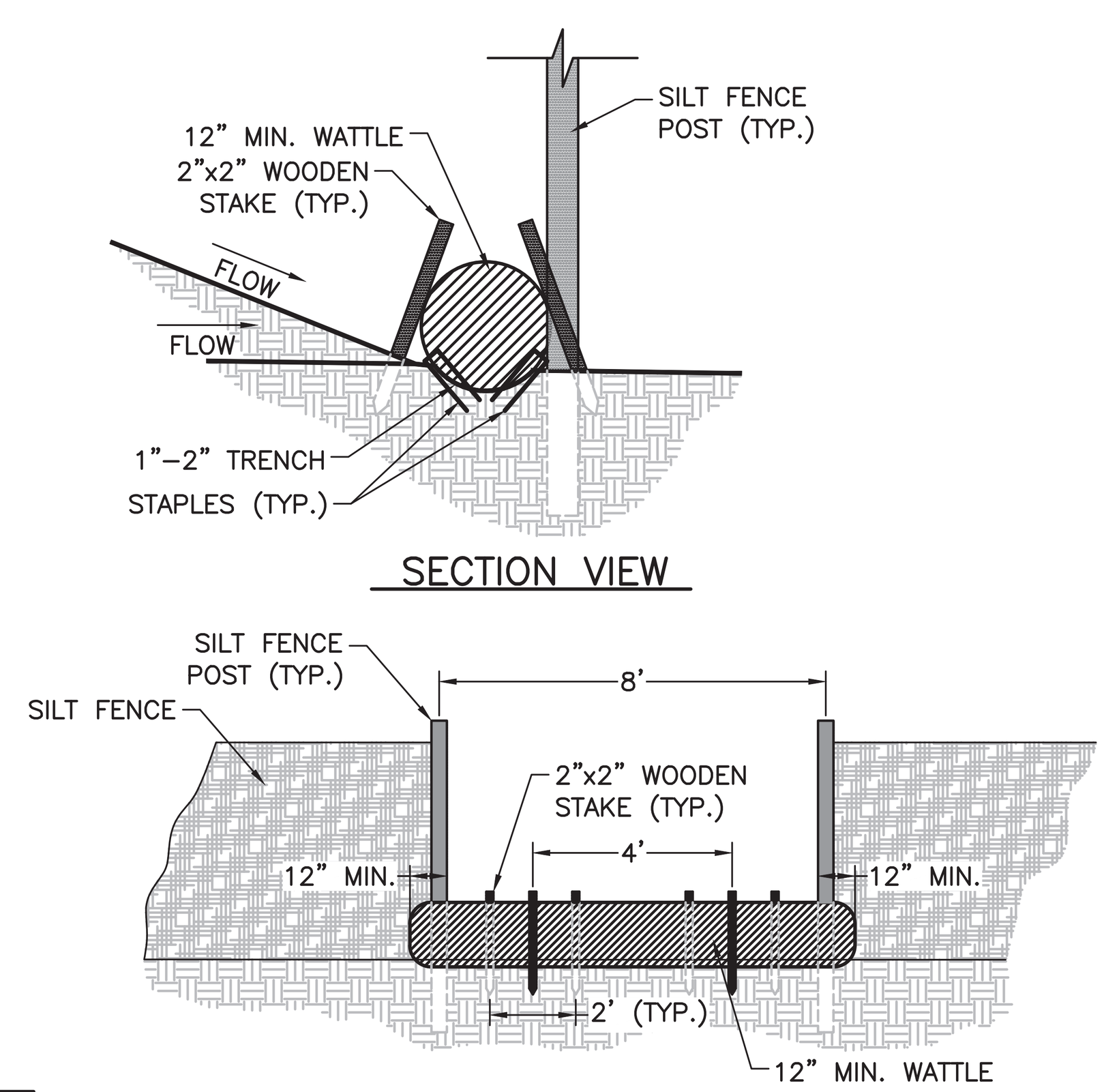
CONSTRUCTION SPECIFICATIONS:

1. CONSTRUCT THE SEDIMENT BARRIER OF STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS.
2. ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24 INCHES ABOVE THE GROUND SURFACE. (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).
3. CONSTRUCT THE FILTER FABRIC FROM CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT SUPPORT POST WITH 4 FEET MINIMUM OVERLAP TO THE NEXT POST.
4. SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT, THE FABRIC ON THE UPSLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.
5. WHEN A WIRE MESH SUPPORT FENCE IS USED, SPACE POSTS A MAXIMUM OF 8 FEET APART. SUPPORT POSTS SHOULD BE DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.
6. EXTRA STRENGTH FILTER FABRIC WITH 6 FEET POST SPACING DOES NOT REQUIRE WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE A MINIMUM 50 POUND TENSILE STRENGTH.
7. EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UPSLOPE FROM THE BARRIER (FIGURE 6.62A, NORTH CAROLINA EROSION AND SEDIMENTATION CONTROL DESIGN MANUAL)
8. PLACE 12 INCHES OF THE FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH.
9. BACKFILL THE TRENCH WITH SOIL PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTION OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.

MAINTENANCE:

INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

2 TEMPORARY SILT FENCE
NOT TO SCALE



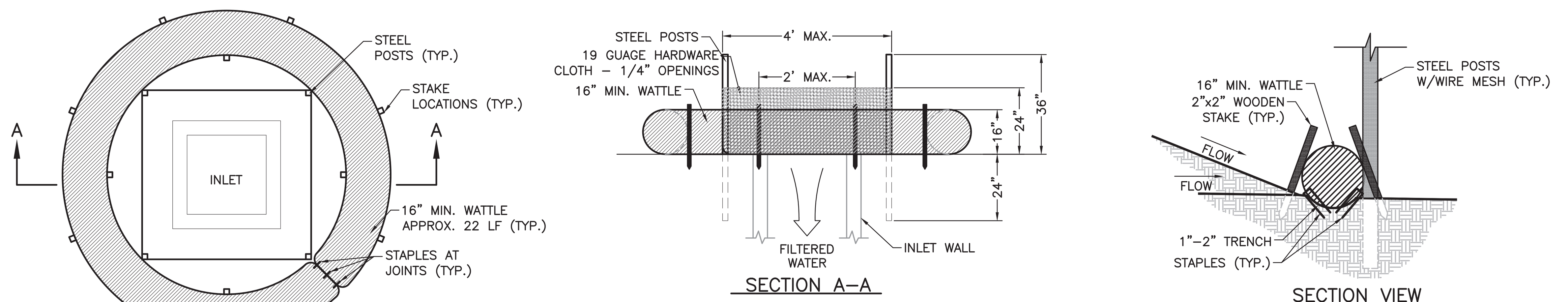
CONSTRUCTION SPECIFICATIONS:

1. USE A MINIMUM 12" DIAMETER WATTLE WITH A MINIMUM LENGTH OF 10 FT.
2. USE 2" X 2" X 2 FT. LONG WOODEN STAKES.
3. EXCAVATE A 1" TO 2" TRENCH FOR WATTLE TO BE PLACED.
4. INSTALL A MINIMUM OF 2 UPSLOPE AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE THE WATTLE TO THE GROUND.
5. PROVIDE STAPLES MADE OF 0.125" DIAMETER STEEL WIRE FORMED INTO A "U" SHAPE AND NOT LESS THAN 12" LENGTH.
6. INSTALL STAPLES APPROXIMATELY EVERY 12" ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
7. WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.
8. INSTALL TEMPORARY SEDIMENT FENCE IN ACCORDANCE WITH NCDENR REGULATIONS.
9. OUTLETS TO BE PLACED AS SHOWN ON PLANS ALONG SILT FENCE.

MAINTENANCE:

1. INSPECT OUTLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2" OR GREATER) RAINFALL EVENT.
2. CLEAR THE OUTLET OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS.
3. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE OUTLET DURING SEDIMENT REMOVAL.
4. REPLACE WATTLE AS NEEDED.

3 TEMPORARY STRAW WATTLE OUTLET AT SILT FENCE
NOT TO SCALE



NOTE:
INLET TOPS TO REMAIN OFF INLET STRUCTURES WHILE INLET PROTECTION IS IN PLACE.

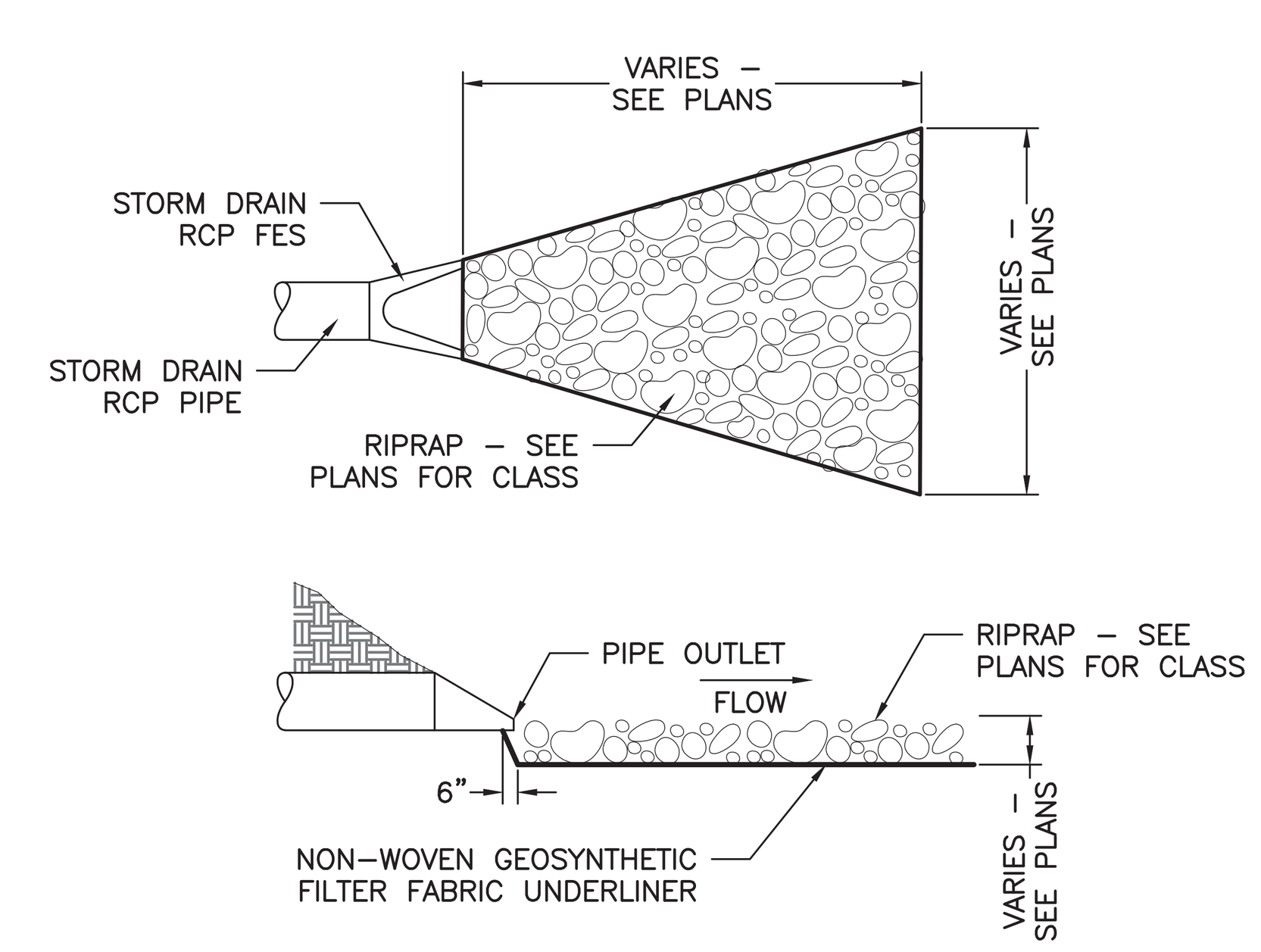
CONSTRUCTION SPECIFICATIONS:

1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5' STEEL POST 2' INTO THE GROUND SURROUNDING THE INLET SPACE POSTS EVENLY AROUND THE PERIMETER ON THE INLET, MAX. 4' APART.
3. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE AND BOTTOM. PLACING A 2' FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. USE A MINIMUM 16" DIAMETER WATTLE WITH A LENGTH TO SURROUND WIRE MESH HARDWARE CLOTH FITTING SNUG AGAINST THE GROUND.
5. USE 2" X 2" X 30" LONG WOODEN STAKES.
6. EXCAVATE A 1" TO 2" TRENCH FOR WATTLE TO BE PLACED.
7. INSTALL A MINIMUM OF 2 UPSLOPE STAKES AT AN ANGLE TO WEDGE THE WATTLE TO THE GROUND AND UP AGAINST THE HARDWARE CLOTH.
8. PROVIDE STAPLES MADE OF 0.125" DIAMETER STEEL WIRE FORMED INTO A "U" SHAPE AND NOT LESS THAN 12" LENGTH.
9. INSTALL STAPLES APPROXIMATELY EVERY 12" ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
10. WATTLE INSTALLATION SHALL BE ON THE OUTSIDE OF THE HARDWARE CLOTH.
11. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
12. COMPACT THE AREA PROPERLY AND STABILIZE IT WITH GROUND COVER.

MAINTENANCE:

INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2" OR GREATER) RAINFALL EVENT. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE WATTLE AS NEEDED.

4 TEMPORARY INLET PROTECTION
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS:

1. ENSURE THAT THE SUBGRADE FOR THE FILTER AND RIPRAP FOLLOWS THE REQUIRED LINES AND GRADES AS SHOWN IN THE PLANS. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL. LOW AREAS IN THE SUBGRADE ON UNDISTURBED SOIL MAY ALSO BE FILLED BY INCREASING THE RIPRAP THICKNESS.
2. THE RIPRAP AND GRAVEL FILTER MUST CONFORM TO THE SPECIFIED GRADING LIMITS SHOWN ON THE PLANS.
3. FILTER CLOTH, WHEN USED, MUST MEET DESIGN REQUIREMENTS AND BE PROPERLY PROTECTED FROM PUNCHING OR TEARING DURING INSTALLATION. REPAIR ANY DAMAGE BY REMOVING THE RIPRAP AND PLACING ANOTHER PIECE OF FILTER CLOTH OVER THE DAMAGED AREA. ALL CONNECTING JOINTS SHOULD OVERLAP SO THE TOP LAYER IS ABOVE THE DOWNSTREAM LAYER A MINIMUM OF 1 FOOT. IF THE DAMAGE IS EXTENSIVE, REPLACE THE ENTIRE FILTER CLOTH.
4. RIPRAP MAY BE PLACED BY EQUIPMENT, BUT TAKE CARE TO AVOID DAMAGING THE FILTER.
5. THE MINIMUM THICKNESS OF THE RIPRAP SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER.
6. RIPRAP MAY BE FIELD STONE OR ROUGH QUARRY STONE. IT SHOULD BE HARD, ANGULAR, HIGHLY WEATHER-RESISTANT AND WELL GRADED.
7. CONSTRUCT THE APRON ON ZERO GRADE WITH NO OVERFILL AT THE END. MAKE THE TOP OF THE RIPRAP AT THE DOWNSTREAM END LEVEL WITH THE RECEIVING AREA OR SLIGHTLY BELOW IT.
8. ENSURE THAT THE APRON IS PROPERLY ALIGNED WITH THE RECEIVING STREAM AND PREFERABLY STRAIGHT THROUGHOUT IT LENGTH. IF A CURVE IS NEEDED TO FIT SITE CONDITIONS, PLACE IT IN THE UPPER SECTION OF THE APRON.
9. IMMEDIATELY AFTER CONSTRUCTION, STABILIZE ALL DISTURBED AREAS WITH VEGETATION.

MAINTENANCE:

INSPECT RIPRAP OUTLET STRUCTURES AFTER HEAVY RAINS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

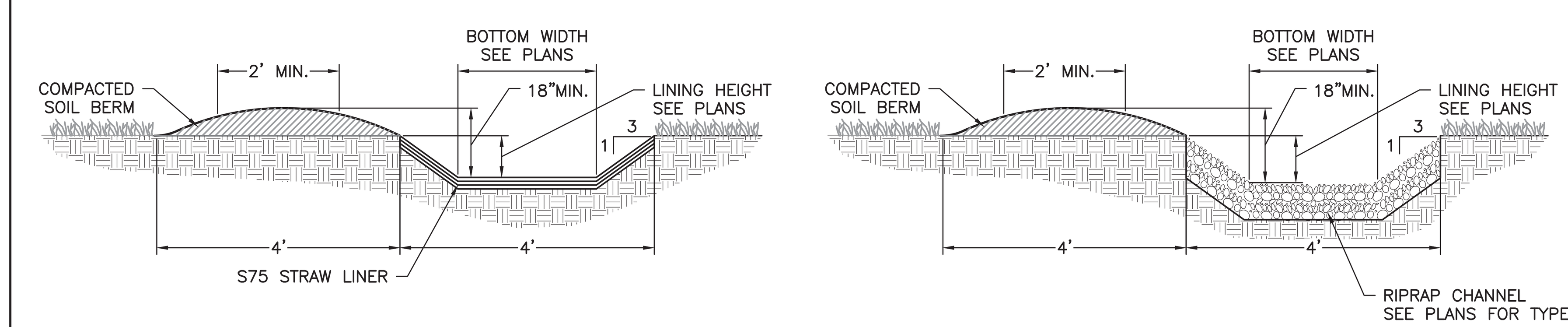
5 RIPRAP VELOCITY DISSIPATOR
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:

1. REMOVE AND PROPERLY DISPOSE OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL.
2. ENSURE THAT THE MINIMUM CONSTRUCTED CROSS SECTION MEETS ALL DESIGN REQUIREMENTS.
3. ENSURE THAT THE TOP OF THE DIKE IS NOT LOWER AT ANY POINT THAN THE DESIGN ELEVATION PLUS THE SPECIFIED SETTLEMENT.
4. PROVIDE SUFFICIENT ROOM AROUND DIVERSIONS TO PERMIT MACHINE REGRADING AND CLEANOUT.
5. VEGETATE THE RIDGE IMMEDIATELY AFTER CONSTRUCTION, UNLESS IT WILL REMAIN IN PLACE LESS THAN 30 WORKING DAYS.

MAINTENANCE:

INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND STABILIZE IT.



6 TEMPORARY LINED DIVERSION SWALE AND BERM
NOT TO SCALE

1. UNLESS OTHERWISE INDICATED, ALL VEGETATION AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE EROSION & SEDIMENT CONTROL PLANNING & DESIGN MANUAL & ACCORDING TO THE SPECIFICATIONS.
2. ALL HARD SURFACE PUBLIC ROADS SHALL BE CLEAN AT THE END OF EACH WORK DAY. PROVIDE TEMPORARY CONSTRUCTION ENTRANCES AT THE LOCATIONS SHOWN ON THE PLANS OR AS OTHERWISE NECESSARY.
3. THE LOCATION OF ALL EROSION AND SEDIMENT CONTROL MEASURES ARE APPROXIMATE. THESE DEVICES SHALL BE LOCATED TO ACHIEVE MAXIMUM BENEFIT. IF DURING CONSTRUCTION THESE DEVICES ARE NOT SUFFICIENT TO ADEQUATELY CONTROL EROSION AND SEDIMENTATION. ADDITIONAL EROSION CONTROL DEVICES SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.
4. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AND DISPOSED OF WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION.
5. CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO PREVENT SEDIMENT (GENERATED BY CONSTRUCTION OR EROSION) FROM ENTERING STREAMS. CONSTRUCTION VEHICLES WILL NOT BE ALLOWED IN FLOWING STREAM CHANNELS OR TO DAMAGE THEIR BANKS. TEMPORARY STREAM CROSSINGS SHALL BE INSTALLED IN ALL FLOWING STREAMS WHICH WILL HAVE CONSTRUCTION TRAFFIC CROSSING THEM.
6. STOCKPILING OF EXCESS MATERIALS IN WETLAND AREAS IS NOT ALLOWED.
7. IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED AFTER EACH RAINFALL OR WEEKLY, WHICHEVER IS MORE FREQUENT (AT LEAST DAILY DURING PERIODS OF PROLONGED RAINFALL). CONTRACTOR SHALL CLEAN AND REPAIR ACCORDINGLY.

7 EROSION AND SEDIMENT CONTROL NOTES
NOT TO SCALE

1. RIP THE ENTIRE AREA TO 6" DEPTH.
2. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
3. APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE IN ACCORDANCE WITH "SEEDING SCHEDULE" AND MIX WITH SOIL.
4. CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
5. SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING. SEED ACCORDING TO "SEEDING SCHEDULE."
6. MULCH IN ACCORDANCE WITH "SEEDING SCHEDULE" IMMEDIATELY AFTER SEEDING.
7. INSPECT ALL SEEDING FOR COMPLIANCE WITH THE REQUIREMENTS OF THE "SEEDING SCHEDULE". MAKE NECESSARY REPAIRS AND RESEED WITHIN THE PLANTING SEASON, IF POSSIBLE, OR THE DAMAGED AREA SHALL BE REESTABLISHED FOLLOWING THE ORIGINAL LIME, FERTILIZER, AND SEEDING REQUIREMENTS.

8 SEED BED PREPARATION
NOT TO SCALE

TEMPORARY SUMMER SEED MIX		
(TO BE FOLLOWED BY PERMANENT FALL SEED MIX)		
DATES	SPECIES	RATE: LB/ACRE
MAR 1 - SEP 1	GERMAN MILLET	120
TEMPORARY WINTER SEED MIX		
(TO BE FOLLOWED BY PERMANENT FALL SEED MIX)		
SEP 1 - MAR 1	WINTER RYE (GRAIN)	200
	KOBE LESPEDEZA	120
PERMANENT SPRING SEED MIX		
MAR 1 - JUL 1	PENSICOLA BAHIAGRASS	60
	COMMON BERMUDA	25
	SERICEA LESPEDEZA	30
PERMANENT FALL SEED MIX		
SEP 1 - NOV 1	COMMON BERMUDA	30
	SERICEA LESPEDEZA	30
	KOBE LESPEDEZA	10

NOTES:
1. TEMPORARY SEED MIX SHALL BE USED FOR ALL AREAS EXPOSED GREATER THAN 15 WORKING DAYS AND SUBJECT TO FURTHER DISTURBANCE. PERMANENT SEED MIX SHALL BE CHECKED FOR ADEQUACY ON JULY 15. AN ADEQUATE COVER SHALL HAVE 50 SPRIGS OF BERMUDA OR SERICEA LESPEDEZA PER ONE SQUARE FOOT.

SOIL AMENDMENTS:

1. TO BE INCORPORATED INTO THE TOP 3 INCHES OF SOIL IN AREAS WITH SLOPES 2:1 OR FLATTER
- APPLY FERTILIZER (10-10-10) AT A RATE OF 1000 LB/ACRE
- APPLY LIME (GROUND AGRICULTURAL LIMESTONE) AT A RATE OF 4000 LB/ACRE *
- APPLY SUPERPHOSPHATE (0-49-0) AT A RATE OF 200 LB/ACRE *

* REQUIRED FOR PERMANENT SEED MIX ONLY

MULCH:

APPLY 4,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER.
ANCHOR MULCH WITH ROVING, NETTING OR BY TACKING WITH ASPHALT EMULSION AT A RATE OF 400 GAL./ACRE

WATER:

MINIMUM OF 1" OF RAINFALL A WEEK (IF NOT SUPPLIED NATURALLY, CONTRACTOR SHALL SUPPLY THE REMAINING AMOUNT UNTIL GROUND COVER HAS BEEN ESTABLISHED).

MAINTENANCE:

REFERTILIZE IN THE SECOND YEAR UNLESS THE GROWTH IS FULLY ADEQUATE. MOW WHEN THE AVERAGE PLANT HEIGHT EXCEEDS 6 INCHES. RESEED, FERTILIZE AND MULCH DAMAGED AREAS IMMEDIATELY.

9 SEEDING SCHEDULE
NOT TO SCALE

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Johnsonville Elementary School Addition/Renovation-Phase 2
18495 NC-27 W, Cameron, NC 28326

ENERGY STAR PARTNER

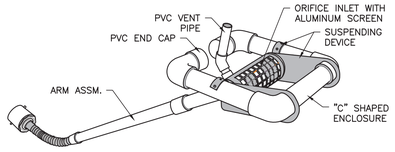
ID	DATE	DESCRIPTION

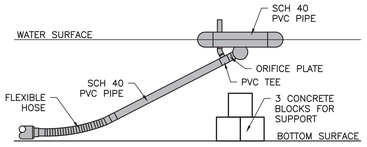
ISSUE DATE: 01-28-2022

PROJECT #: 02103.000
DRAWN BY: MFL
CHECKED BY: PAP

EROSION CONTROL DETAILS

D-301





1 FLOATING SKIMMER
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:

1. PLACE THE BARREL (TYPICALY 4–INCH SCHEDULE 40 PVC PIPE) ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL. DO NOT USE PERVIOUS MATERAL SUCH AS SAND, GRAVEL, OR CRUSHED STONE AS BACKFILL AROUND THE PIPE. PLACE THE FILL MATERIAL AROUND THE PIP SPILLWAY IN 4–INCH LAYERS AND COMPACT IT UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY OF THE ADJACENT EMBANKMENT. CARE MUST BE TAKEN NOT TO RAISE THE PIPE FROM THE FIRM CONTACT WITH ITS FOUNDATION WHEN COMPACTING UNDER THE PIPE HAUNCHES. PLACE A MINIMUM DEPTH OF 2–FEET OF COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT. IN NO CASE SHOULD THE PIPE CONDUIT BE INSTALLED BY CUTTING A TRENCH THROUGH THE DAM AFTER THE EMBANKMENT IS COMPLETE.
2. ASSEMBLE THE SKIMMER FOLLOWING THE MANUFACTURERS INSTRUCTIONS, OR AS DESIGNED.
3. LAY THE ASSEMBLED SKIMMER ON THE BOTTOM OF THE BASIN WITH THE FLEXIBLE JOINT AT THE INLET OF THE BARREL PIPE. ATTACH THE FLEXIBLE JOINT TO THE BARREL PIPE AND POSITION THE SKIMMER OVER THE EXCAVATED PIT OR SUPPORT. BE SURE TO ATTACHE A ROPE TO THE SKIMMER AND ANCHOR IT TO THE SIDE OF THE BASIN. THIS WILL BE USED TO PULL THE SKIMMER TO THE SIDE FOR MAINTENANCE.

MAINTENANCE:

INSPECT SKIMMER AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (ONE–HALF INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. PULL THE SKIMMER TO ONE SIDE SO THAT THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER.
IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, USUALLY JERKING ON THE ROPE WILL MAKE THE SKIMMER BOB UP AND DOWN AND DISLODGE THE DEBRIS AND RESTORE FLOW. IF THIS DOES NOT WORK, PULL THE SKIMMER OVER TO THE SIDE OF THE BASIN AND REMOVE THE DEBRIS. ALSO CHECK THE ORIFICE INSIDE THE SKIMMER TO SEE IF IT IS CLOGGED; IF SO REMOVE THE DEBRIS.
IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, THE ORIFICE CAN BE REMOVED AND THE OBSTRUCTION CLEARED WITH A PLUMBER'S SNAKE OR BY FLUSHING WITH WATER. BE SURE AND REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.
FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.

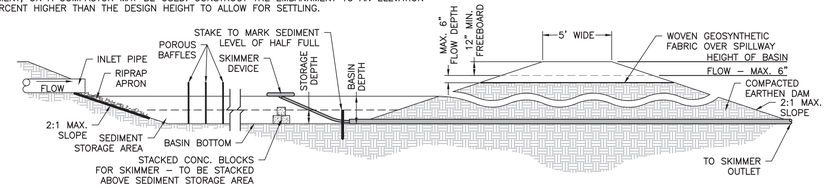
CONSTRUCTION SPECIFICATIONS:

1. SITE PREPARATIONS – CLEAR, GRUB, AND STRIP TOPSOIL FROM AREAS UNDER THE EMBANKMENT TO REMOVE TREES, VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. DELAY CLEARING THE POOL AREA UNTIL THE DAM IS COMPLETE AND THEN REMOVE BRUSH, TREES, AND OTHER OBJECTIONABLE MATERIALS TO FACILITATE SEDIMENT CLEANOUT. STOCKPILE ALL TOPSOIL OR SOIL CONTAINING ORGANIC MATTER FOR USE ON THE OUTER SHELL OF THE EMBANKMENT TO FACILITATE VEGETATIVE ESTABLISHMENT. PLACE TEMPORARY SEDIMENT CONTROL MEASURES BELOW BASIN AS NEEDED.
2. EMBANKMENT – TAKE FILL MATERIAL FROM THE APPROVED AREAS SHOWN ON THE PLANS. IT SHOULD BE CLEAN MINERAL SOIL, FREE OF ROOTS, WOODY VEGETATION, ROCKS AND OTHER OBJECTIONABLE MATERIAL. SCARIFY AREAS ON WHICH FILL IS TO BE PLACED BEFORE PLACING FILL. THE FILL MATERIAL. MUST CONTAIN SUFFICIENT MOISTURE SO IT CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED OUT OF THE BALL, IT IS TOO WET FOR PROPER COMPACTION. PLACE FILL MATERIAL IN 6 TO 8 INCH CONTINUOUS LAYERS OVER THE ENTIRE LENGTH OF THE FILL AREA AND COMPACT IT. COMPACTION MAY BE OBTAINED BY ROUTING THE CONSTRUCTION HAULING EQUIPMENT OVER THE FILL SO THAT THE ENTIRE SURFACE OF EACH LAYER IS TRAVERSED BY AT LEAST ONE WHEEL OR TREAD TRACK OF HEAVY EQUIPMENT, OR A COMPACTOR MAY BE USED. CONSTRUCT THE EMBANKMENT TO AN ELEVATION 10 PERCENT HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLING.
3. EMERGENCY SPILLWAY – INSTALL THE EMERGENCY SPILLWAY IN UNDISTURBED SOIL. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADE, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE EMERGENCY SPILLWAY.
4. INLETS – DISCHARGE WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION. USE DIVERSIONS WITH OUTLET PROTECTION TO DIVERT SEDIMENT–LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE BASIN TRAP EFFICIENCY (REFERENCES: RUNOFF CONTROL MEASURES AND OUTLET PROTECTION).
5. EROSION CONTROL – CONSTRUCT THE STRUCTURE SO THAT THE DISTURBED AREA IS MINIMIZED. DIVERT SURFACE WATER AWAY FROM BARE AREAS. COMPLETE THE EMBANKMENT BEFORE THE AREA IS CLEARED. STABILIZED THE EMERGENCY SPILLWAY EMBANKMENT AN ALL OTHER DISTURBED AREAS ABOVE THE CREST OF THE PRINCIPAL SPILLWAY IMMEDIATELY AFTER CONSTRUCTION. (REFERENCES: SURFACE STABILIZATION).
6. INSTALL POROUS BAFFLES AS SPECIFIED IN PRACTICE 6.65, POROUS BAFFLES.
7. SAFETY – SKIMMER BASINS MAY ATTRACT CHILDREN AND CAN BE DANGEROUS. AVOID STEEP SIDE SLOPES, AND FENCE AND MARK BASIN WITH WARNING SIGNS IF TRESPASSING IS LIKELY. FOLLOW ALL STATE AND LOCAL REQUIREMENTS.

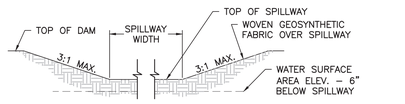
MAINTENANCE:

INSPECT TEMPORARY SKIMMER BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2–INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN IT ACCUMULATES TO ONE–HALK THE DESIGN DEPTH. PLACE REMOVED SEDIMENT IN AN AREA WITH SEDIMENT CONTROLS.

CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE RISER AND POOL AREA.



2 TEMPORARY SKIMMER BASIN
NOT TO SCALE



EMERGENCY SPILLWAY CROSS–SECTION
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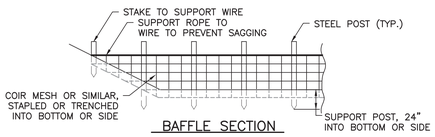
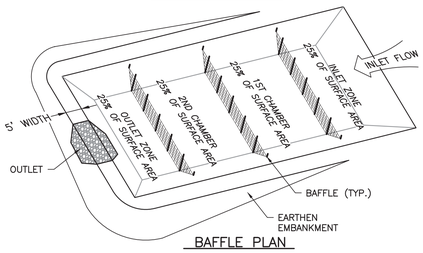


BAFFLE SECTION



BAFFLE PLAN

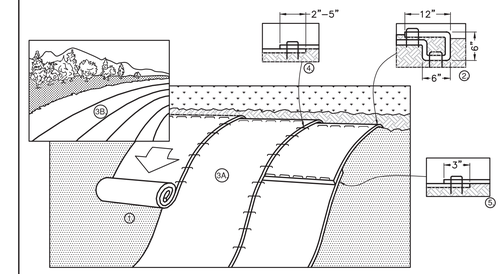
3 POROUS BAFFLES
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:

1. GRADE THE BASIN SO THAT THE BOTTOM IS LEVEL FRONT TO BACK AND SIDE TO SIDE.
2. INSTALL POSTS OR SAW HORSES ACROSS THE WIDTH OF THE SEDIMENT TRAP.
3. STEEL POSTS SHOULD BE DRIVEN TO A DEPTH OF 24", SPACED A MAXIMUM OF 4' APART, AND INSTALLED UP THE SIDES OF THE BASIN AS WELL. THE TOP OF THE FABRIC SHOULD BE 6" HIGHER THAN THE INVERT OF THE SPILLWAY. TOPS OF BAFFLES SHOULD BE 2" LOWER THAN THE TOP OF THE BERMS.
4. INSTALL AT LEAST THREE ROWS OF BAFFLES BETWEEN THE INLET AND OUTLET DISHARGE POINT. BASINS LESS THAN THE TOP OF THE BERMS.
5. WHEN USING POSTS, ADD A SUPPORT WIRE OR ROPE ACROSS THE TOP OF THE MEASURE TO PREVENT SAGGING.
6. WRAP POROUS MATERIAL, LIKE JUTE BACKED BY COIR MATERIAL, OVER A SAWHORSE OR THE TOP WIRE. HAMMER REBAR INTO THE SAWHORSE LEGS FOR ANCHORING. THE FABRIC SHOULD HAVE FIVE TO TEN PERCENT OPENINGS IN THE WEAVE. ATTACH FABRIC TO A ROPE AND A SUPPORT STRUCTURE WITH ZIP TIES, WIRE OR STAPLES.
7. THE BOTTOM AND SIDES OF THE FABRIC SHOULD BE ANCHORED IN A TRENCH OR PINNED WITH 8" EROSION CONTROL MATTING STAPLES.
8. DO NOT SPLICE THE FABRIC, BUT USE A CONTINUOUS PIECE ACROSS THE BASIN.

MAINTENANCE:

1. INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
3. REMOVE SEDIMENT DEPOSITS WHEN IT REACHED HALF FULL TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PROESSURE ON THE BAFFLES. TAKE CARE TO AVOID DAMAGING THE BAFFLES DURING CLEANOUT. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.
4. AFTER CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
NOTE: WHEN USING CELL–O–SEED DO NOT SEED PREPARED AREA.
CELL–O–SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF RECP's EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2" – 5" (5 CM – 12.5 CM) OVERLAP DEPENDING ON RECP's TYPE.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP's WIDTH.
NOTE:
IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP's.

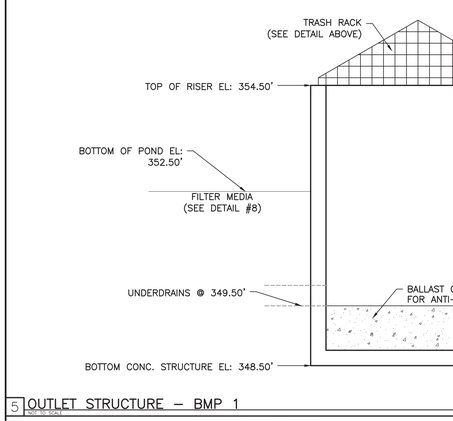
CONSTRUCTION SPECIFICATIONS:

1. EVEN IF PROPERLY DESIGNED, IF NOT PROPERLY DESIGNED, RECP'S WILL PROBABLY NOT FUNCTION AS DESIRED. PROPER INSTALLATION IS IMPERITIVE. EVEN IF PROPERLY INSTALLED, IF NOT PROPERLY TIMED AND NOURISHED, VEGETATION WILL PROBABLY NOT GROW AS DESIRED. PROPER SEED/VEGETATION SELECTION IS ALSO IMPERATIVE.
2. GRADE THE SURFACE OF INSTALLATION AREAS SO THAT THE GROUND IS SMOOTH AND LOOSE. WHEN SEEDING PRIOR TO INSTALLATION, FOLLOW THE STEPS FOR SEED BED PREPARATION, SOIL AMMENDMENTS, AND SEEDING IN SURFACE STABILIZATION, 6.1. ALL GULLIES, RILLS, AND ANY OTHER DISTURBED AREAS MUST BE FINE GRADED PRIOR TO INSTALLATION. SPREAD SEED BEFORE RECP INSTALLATION. (IMPORTANT: REMOVE ALL LARGE ROCKS, DIRT CLODS, STUMPS, ROOTS, GRASS CLUMPS, TRASH, AND OTHER OBSTRUCTIONS FROM THE SOIL SURFACE TO ALLOW FOR DIRECT CONTACT BETWEEN THE SOIL SURFACE AND THE RECP.)
3. TERMINAL ANCHOR TRENCHES ARE REQUIRED AT RECP ENDS AND INTERMITTENT TRENCHES MUST BE CONSTRUCTED ACROSS CHANNELS AT 25–FOOT INTERVALS. TERMINAL ANCHOR TRENCHES SHOULD BE A MINIMUM OF 12 INCHES IN DEPTH AND 6 INCHES IN WIDTH, WHILE INTERMITTENT TRENCHES NEED BE ONLY 6 INCHES DEEP AND 6 INCHES WIDE.

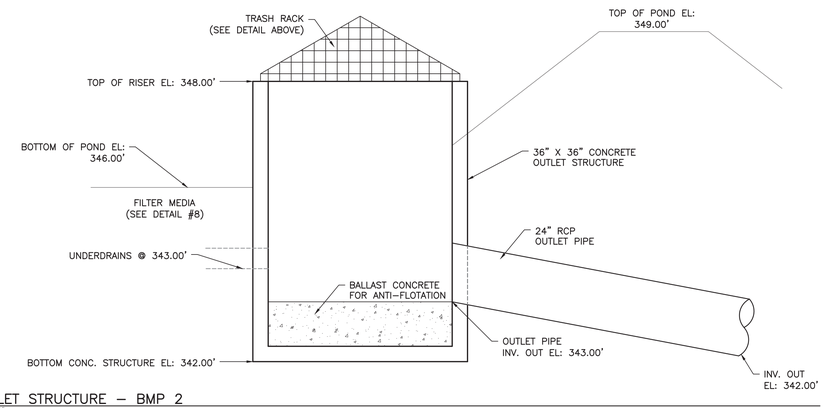
MAINTENANCE:

1. INSPECT ROLLED EROSION CONTROL PRODUCTS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAIN FALL EVENT, REPAIR IMMEDIATELY.
2. GOOD CONTACT WITH THE GROUND MUST BE MAINTAINED, AND EROSION MUST NOT OCCUR BENEATH THE RECP.
3. ANY AREAS OF THE RECP THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED.
4. IF EROSION OCCURS DUE TO POORLY CONTROLLED DRAINAGE, THE PROBLEM SHALL BE FIXED AND THE ERODED AREA PROTECTED.
5. MONITOR AND REPAIR THE RECP AS NECESSARY UNITL GROUND COVER IS ESTABLISHED.

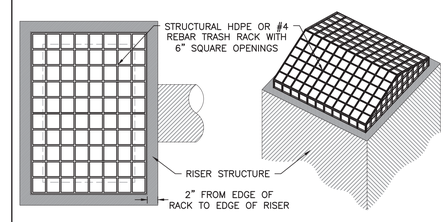
4 ROLLED EROSION CONTROL PRODUCT
NOT TO SCALE



5 OUTLET STRUCTURE – BMP 1
NOT TO SCALE

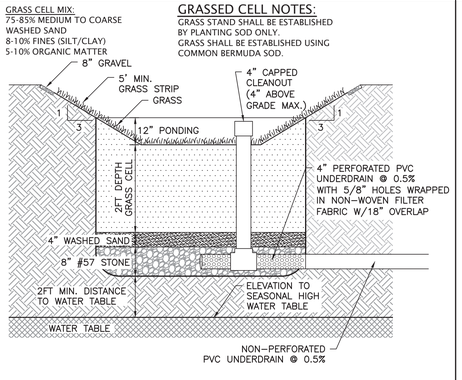


6 OUTLET STRUCTURE – BMP 2
NOT TO SCALE



NOTES:
1. SEE DESIGN PLANS FOR SPECIFIED DIMENSIONS OF RISER.
2. TRASH RACK DIMENSION CRITERIA SPECIFIED IS APPROXIMATE AND VARIES BY MANUFACTURER.
3. INSTALLATION OF TRASH RACK SHALL BE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
4. ALL MOUNTING HARDWARE SHALL BE OF STAINLESS STEEL OR OTHER NON–CORROSIVIE MATERIAL.

7



8 BIORETENTION CELL
NOT TO SCALE

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Harnett County Schools
Johnsonville Elementary School Addition/Renovation-Phase 2
18495 NC-27 W, Cameron, NC 28326

ENERGY STAR PARTNER

ID	DATE	DESCRIPTION

ISSUE DATE: 01-28-2022
PROJECT #: 02103.000
DRAWN BY: MFL
CHECKED BY: PAP

EROSION CONTROL DETAILS

D-302

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible***. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes		
Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

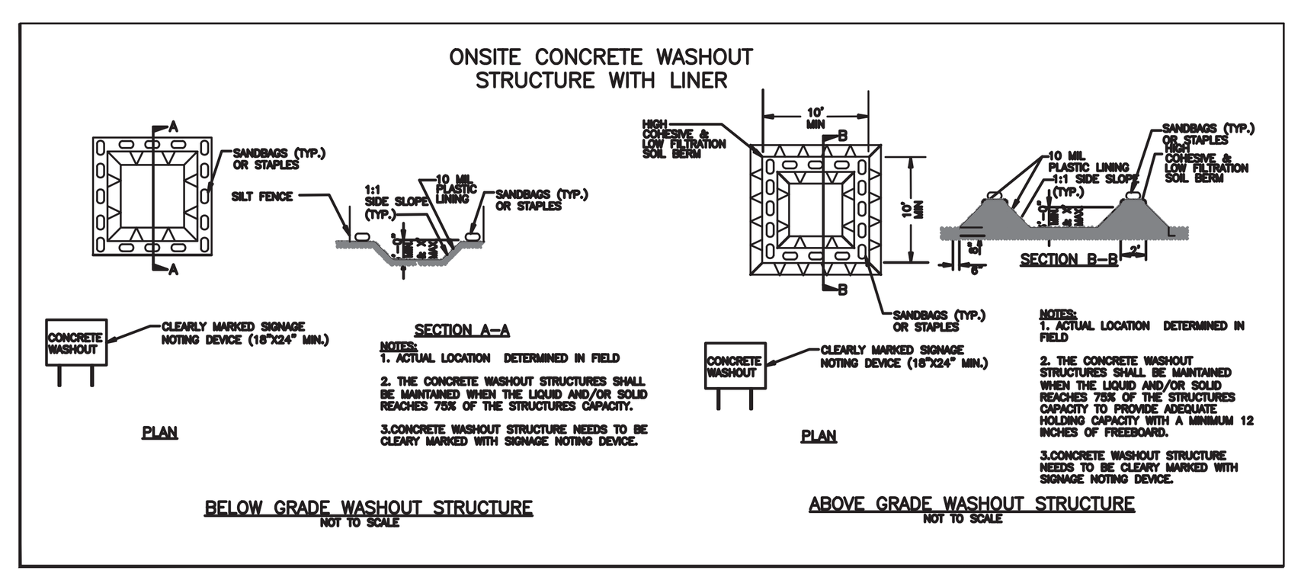
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

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Harnett County Schools
Johnsonville Elementary School Addition/Renovation-Phase 2
18495 NC-27 W, Cameron, NC 28326

ENERGY STAR PARTNER

ID	DATE	DESCRIPTION

ISSUE DATE: 01-28-2022

PROJECT #: 02103.000
DRAWN BY: MFL
CHECKED BY: PAP

NCG01 INFORMATION

D-303

WATER

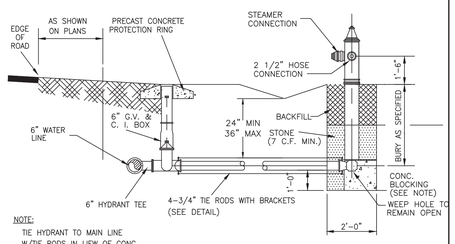
A. The Fire Marshal's Office shall approve all hydrant types and locations in new subdivisions. However, Harnett Regional Water prefers the contractors to install one of the following fire hydrants:
AA. Mueller – Super Centurion 250 A–423 model with a 5¼" main valve opening three way (two hose nozzles and one pumper nozzle); 2. American Darling – Mark B–84–B model with a 5¼" main valve opening three way (two hose nozzles and one pumper nozzle); 3. Waterous – Pacer B–67–250 model with a 5¼" main valve opening three way (two hose nozzles and one pumper nozzle) or approved equal for standardization.
B. Fire hydrants are installed at certain elevations. Any grade change near any fire hydrant, which impedes its operation, shall become the responsibility of the Utility Contractor for correction. Corrections will be monitored by the HRW Utility Construction Inspector and the Harnett County Fire Marshal.
C. The Professional Engineer (PE) shall obtain and provide the NCDEQ "Authorization to Construct" permit to the Utility Contractor before the construction of the water line shall begin. The Utility Contractor must post a copy of the NCDEQ "Authorization to Construct" permit issued by the North Carolina Department of Environmental Quality (NCDEQ) on site prior to the start of construction. The permit must be maintained on site throughout the entire construction process of the proposed water lines that will serve this project.
D. The Utility Contractor shall notify Harnett Regional Water (HRW) and the Professional Engineer (PE) at least two days prior to construction commencing. The Utility Contractor must schedule a pre–construction conference with Mr. Alan Moss, HRW Utility Construction Inspector at least two (2) days before construction will begin and the Utility Contractor must coordinate with HRW for regular inspection visitations and acceptance of the water system(s). Construction work shall be performed only during the normal working hours of HRW which is 8:00 am – 5:00 pm Monday through Friday. Holiday and weekend work is not permitted by HRW.
E. The Professional Engineer (PE) shall provide HRW and the Utility Contractor with a set of NCDEQ approved plans marked "Released for Construction" at least two days prior to construction commencing. The Registered Land Surveyor (RLS) should stake out all lot corners and the grade stakes for the proposed finish grade for each street before the Utility Contractor begins construction of the water line(s). The grade stakes should be set with a consistent offset from the street centerline so as not to interfere with the street grading and utility construction.
F. The Utility Contractor shall provide the HRW Utility Construction Inspector with material submittals and shop drawings for all project materials prior to the construction of any water line extension(s), and associated water services in Harnett County.The materials to be used on the project must meet the established specifications of HRW and be approved by the Engineer of Record prior to construction. All substandard materials or materials not approved for use in Harnett County found on the project site must be removed immediately when notified by the HRW Utility Construction Inspector.
G. The water main(s), fire hydrants, service lines, meter setters and all associated appurtenances shall be constructed in strict in accordance with the standard specifications of the Harnett Regional Water (HRW). The Utility Contractor shall be responsible to locate the newly installed water main(s), water service lines and all associated meter setters and meter boxes for other utility companies and their contractors until the new water main(s) have been approved by the North Carolina Department of Environmental Quality, Division of Environmental Health, Public Water Supply Section (NCDEQ, DEH, PWS) and accepted by HRW.
H. Prior to acceptance, all services will be inspected to insure that they are installed at the proper depth. All meter boxes must be flush with the ground level at finish grade and the meter setters must be a minimum of 8" below the meter box lid. Meter setters shall be centered in the meter box and supported by brick, block or stone.
I. The Utility Contractor shall provide the Professional Engineer and HRW Utility Construction Inspector with a set of red line drawings identifying the complete water system installed for each project. The red line drawings should identify the materials, pipe sizes and approximate depths of the water lines as well as the gate valves, fire hydrants, meter setters, blow off assemblies and all associated appurtenances for all water line(s) constructed in Harnett County. The red line drawings should clearly identify any deviations from the NCDEQ approved plans. All change orders must be approved by HRW and the Professional Engineer (PE) in writing and properly documented in the red line field drawings.
J. Potable water mains crossing other utilities and non–potable water lines (sanitary sewer, storm sewer, RCP, etc.) shall be laid to provide a minimum vertical distance of twenty–four (24') inches between the potable water main and all other utilities. NCDOT requires the new water mains to be installed under the storm water lines. The potable water main shall be installed with twenty–four (24') inches of vertical separation and with ductile iron pipe when designed to be placed under a nonpotable water line such as sanitary sewer or storm sewer lines. If these separations cannot be maintained then the water main shall be installed with ductile iron pipe. Both the potable water main and the non–potable water line must be cast iron or ductile iron pipe (DIP) if the state minimum separations cannot be maintained. The ductile iron pipe must be laid so the mechanical joints are at least (10') feet from the point where the potable water main crosses the non–potable water line.
K. Potable water mains installed parallel to non–potable water lines (sanitary sewer, storm sewer, RCP, etc.) shall be laid to provide a minimum horizontal distance of ten (10') feet between the potable water main and sanitary sewer mains, sewer laterals and services. The horizontal separation between the potable water main and any other utility or storm sewer shall not be less than five (5') feet. The potable water main must be ductile iron pipe if this horizontal separation of ten (10') feet cannot be maintained. The ductile iron pipe shall extend at least ten (10') feet beyond the point where the minimum required horizontal separation of ten (10') feet can be re–established.
L. Meter setters shall be installed in pairs on every other lot line where possible to leave adequate space for other utilities to be installed at a later time. The meter setters shall be installed at least one (1') foot inside the right–of–way and at least three (3') to five (5') feet from the property line between the lots.
M. HRW requires that meter boxes for ¾" services shall be 12" wide x 17" long ABS plastic boxes at least 18" in height with cast iron lids/covers. Meter boxes for 1" services shall be 17" wide x 21" long ABS plastic boxes at least 18" in height with plastic lids and cast iron flip covers in the center of the lids. Meter boxes for 2" services shall be 20" wide x 32" long ABS plastic boxes at least 20" in height with plastic lids and cast iron flip covers in the center of the lids.
N. Master meters must be installed in concrete vaults sized for the meter assembly and associated appurtenances so as to provide at least eighteen (18") inches of clearance between the bottom of the concrete vault and the bottom of the meter setter. The master meter must be provided test ports if the meter is not equipped with test ports from the manufacturer in accordance with the HRW established standard specifications and details. Ductile iron pipe must be used for the master meter vault piping and valve vault piping. The Utility Contractor must provide shop drawings for the meter vaults to HRW prior to ordering the concrete vaults.
O. The Utility Contractor will install polyethylene SDR–9 water service lines that cross under the pavement inside a schedule 40 PVC conduit to allow for removal and replacement in the future. Two (2) independent ¾" water service lines may be installed inside one (1) – two (2') inch schedule 40 PVC conduit or two (2) independent 1" water service lines may be installed inside one – three (3') inch schedule 40 PVC conduit, but each water service shall be tapped directly to the water main. Split services are not allowed by HRW. If sidewalks are proposed, the conduit must extend past the sidewalk.
P. The water main(s), fire hydrants, gate valves, service lines, meter setters and associated appurtenances must be rated for 200 psi and hydrostatically pressure tested to 200 psi. The hydrostatic pressure test(s) must be witnessed by the HRW Utility Construction Inspector. The Utility Contractor must notify HRW when they are ready to begin filling in lines and coordinate with Harnett Regional Water to witness all pressure testing.
Q. The Utility Contractor shall conduct a pneumatic pressure test using compressed air or other inert gas on the stainless steel tapping sleeve(s) prior to making the tap on the existing water This pneumatic pressure test must be witnessed by the HRW Utility Construction Inspector. The Utility Contractor shall use Romac brand stainless steel tapping sleeve(s) or approved equal for all taps made in Harnett County. All new water line extensions must begin with a resilient wedge type gate valve sized equal to the diameter of the new water line extension in order to provide a means of isolation between Harnett Regional Water's existing water mains and the new water line extensions under construction.
R. All water mains will be constructed with SDR–21 PVC Pipe or Class 50 Ductile Iron Pipe rated for at least 200 psi or greater. All pipes must be protected during loading, transport, unloading, staging, and installation. PVC pipe must be protected from extended exposure to sunlight prior to installation.
S. All water mains will be flushed and disinfected in strict accordance with the standard specifications of the Harnett Regional Water. All water samples collected for bacteria testing will be collected by the HRW Utility Construction Inspector and tested in the HRW Laboratory.
T. All fittings larger than two (2') inches diameter shall be ductile HRW requires that mechanical joints be assembled with grip rings as "Megalug" fittings are not approved by Harnett Regional Water for pipe sizes smaller than twelve inches (12') diameter. PVC pipe used for water mains shall be connected by slip joint or mechanical joint with grip rings. Glued pipe joints are not allowed on PVC pipe used for water mains in Harnett County.
U. HRW requires that the Utility Contractor install tracer wire in the trench with all water lines. The tracer wire shall be 12 ga. insulated, solid copper conductor and it shall be terminated at the top of the valve boxes or manholes. No spliced wire connections shall be made underground on tracer wire installed in Harnett County. The tracer wire may be secured with duct tape to the top of the pipe before backfilling.
V. The Utility Contractor will provide Professional Engineer (PE) and the HRW Utility Construction Inspector with a set of red line field drawings to identify the installed locations of the water line(s) and all associated services. All change orders must be pre–approved by HRW and the Professional Engineer (PE) in writing and properly documented in the red line field drawings.
W. The Utility Contractor shall spot dig to expose each utility pipe or line which may conflict with construction of proposed water line extensions well in advance to verify locations of the existing utilities. The Utility Contractor shall provide both horizontal and vertical clearances to the Professional Engineer (PE) to allow the PE to adjust the water line design in order to avoid conflicts with existing underground utilities. The Utility Contractor shall coordinate with the utility owner and be responsible for temporary relocation and/or securing existing utility poles, pipes, wires, cables, signs and/or utilities including services in accordance with the utility owner requirements during water line installation, grading and street construction.
X. Prior to the commencement of any work within established utility easements or NCDOT right–of–ways the Utility Contractor is required to have a signed NCDOT encroachment agreement posted on site and notify all concerned utility companies in accordance with G.S. 87–102. The Utility Contractor must call the NC One Call Center at 811 or (800) 632–4949 to verify the location of existing utilities prior to the beginning of construction. Existing utilities shown in these plans are taken from maps furnished by various utility companies and have not been physically located or verified by the P.E. (i.e. TELEPHONE, CABLE, WATER, SEWER, ELECTRICAL POWER, FIBER OPTIC, NATURAL GAS, ETC.). The Utility Contractor will be responsible to repair any and all damages to the satisfaction of the related utility company.
Y. The Utility Contractor shall provide HRW with at least one (1) fire hydrant wrench and one (1) break–away flange kit for every subdivision with fire hydrants developed in Harnett County. These items must be provided to HRW before the final inspection will be scheduled by the HRW Utility Construction Inspector. In addition, the Utility Contractor shall install a 4" x 4" concrete valve marker at the edge of the right–of–way to identify the location of each gate valve installed in the new water system with the exception of the fire hydrant isolation valves. The contractor shall measure the distance from the center of the concrete marker to the center of the valve box. This distance (in linear shall be stamped on the brass plate located on the top of the concrete valve marker. In lieu of installing the concrete valve markers, the Utility Contractor may provide at least two measurements from two independent permanent above ground structures to the Professional Engineer (PE) in the red line drawings to identify the valve locations. The Professional Engineer (PE) must include these measurements in the As–Built Record Drawings submitted to HRW.
Z. The Utility Contractor will be responsible for any and all repairs due to leakage or damage from poor workmanship during the one year warranty period once the water system improvements have been accepted by Harnett Regional Water. Harnett Regional Water will provide maintenance and repairs when requested and bill the Developer and/or Utility Contractor if necessary due to lack of response within 48 hours of notification of warranty The Utility Contractor will be responsible for any and all repairs due to damages resulting from failure to locate the new water lines and associated appurtenances for other utilities and their contractors until the water lines have been approved by NCDEQ and accepted by HRW. The final inspection of water system improvements cannot be scheduled with HRW until the streets have been paved; the rights–of–way and utility easements have been seeded and stabilized with an adequate stand of grass in place to prevent erosion issues on site.
AA. The Engineer of Record is responsible to insure that construction is, at all times, in compliance with accepted sanitary engineering practices and approved plans and specifications. No field changes to the approved plans are allowed without prior written approval by HRW. A copy of each engineer's field report is to be submitted to HRW as each such inspection is made on system improvements or testing is performed by the contractor. Water and sewer infrastructure must pass all tests required by HRW specifications and those of all applicable regulatory agencies. These tests include, but are not limited to: air test, vacuum test, mandrel test, visual test, pressure test, bacteriological test, etc. A HRW Inspector must be present during testing and all test results shall be submitted to HRW. All tests must be satisfied before the final inspection will be scheduled with the HRW Inspector. The Engineer of Record must request in writing to schedule the final inspection once all construction is complete. The Developer's Engineer of Record and the HRW Utility Construction Inspector shall prepare a written punch list of any defects or deficiencies noted during the final inspection, should any exist. Upon completion of the punch list, the Developer's Engineer of Record will schedule another inspection. In the event the number of inspections performed by the HRW exceeds two, additional fees may be accessed to the Developer.

GENERAL WATERLINE NOTES

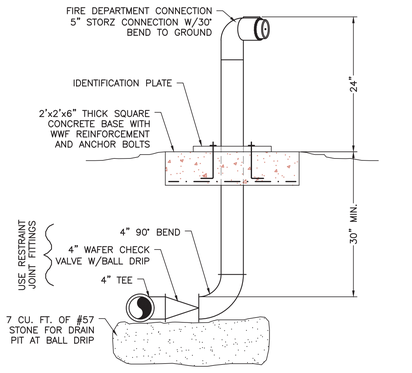
1. CONTRACTOR SHALL REPAIR ALL WATER LATERALS, AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL REPORT IMMEDIATELY ALL WATER MAIN AND LATERAL BREAKS TO HARNETT COUNTY DISPATCHER AND TO THE OWNER'S REPRESENTATIVE AND SHALL INITIATE IMMEDIATE REPAIRS TO HARNETT COUNTY STANDARDS. CONTRACTOR SHALL NOT OPERATE HARNETT COUNTY WATER MAIN VALVES WITHOUT HARNETT COUNTY APPROVAL AND SHALL COORDINATE ALL VALVE CLOSINGS WITH THE HARNETT COUNTY WATER AUTHORITY. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH WATER SYSTEM IN THE AREA SO AS TO LESSEN THE CHANCE OF SERVICE INTERRUPTION.

2. THE CONTRACTOR SHALL NOT USE HOUSE HOSE BIBBS OR ANY OTHER METHOD OF BLOW OFF WHICH ALLOWS DOMESTIC WATER CONTAINING SEDIMENTS OR HIGH LEVELS OF CHLORINE TO PASS THRU RESIDENT'S METERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM ALLOWING "DIRTY" WATER TO ENTER RESIDENT'S PLUMBING SYSTEM, SUCH AS WATER HEATERS, STAINED CLOTHING, CLOGGED SCREENS, ETC.

1



2 TYPICAL FIRE HYDRANT INSTALLATION
NOT TO SCALE



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Harnett County Schools
Johnsonville Elementary School Addition/Renovation-Phase 2
18495 NC-27 W, Cameron, NC 28326

ENERGY STAR PARTNER

ID	DATE	DESCRIPTION

ISSUE DATE: 01-28-2022
PROJECT #: 02103.000
DRAWN BY: MFL
CHECKED BY: PAP

WATERLINE NOTES AND DETAILS

D-401

SANITARY SEWER

A. The Professional Engineer (PE) shall obtain and supply a copy of the sewer permit for the construction and operation of the wastewater collection system to the Utility Contractor before the construction of the sanitary sewer line, sewer lift station and associated force main shall begin. The Utility Contractor must post a copy of the sewer permit issued by the North Carolina Department of Environmental Quality (NCDEQ) on site prior to the start of construction. The permit must be maintained on site during the construction of the sewer system improvements.

B. The Utility Contractor shall notify Harnett Regional Water (HRW) and the Professional Engineer (PE) at least two days prior to construction commencing. The Utility Contractor must schedule a pre-construction conference with Mr. Alan Moss, HRW Utility Construction Inspector at least two (2) days before construction will begin and the Utility Contractor must coordinate with HRW for regular inspection visitations and acceptance of the wastewater system(s). Construction work shall be performed only during the normal working hours of HRW which is 8:00 am - 5:00 pm Monday through Friday. Holiday and weekend work is not permitted by HRW.

C. The Professional Engineer (PE) shall provide HRW with a set of NCDEQ approved plans marked "Released for Construction" at least two days prior to construction commencing. HRW will stamp the approved plans as "Released for Construction" and provide copies to the utility contractor. The Registered Land Surveyor (RLS) shall stake out all lot corners and establish grade stakes for the proposed finish grade for each street and sewer line before the Utility Contractor begins construction or installation of the manholes, sanitary sewer gravity line(s), sewer lift stations and/or sanitary sewer force main(s). The grade stakes should be set with a consistent offset from the street centerline so as not to interfere with the street grading or utility construction.

D. The Utility Contractor shall provide the HRW Utility Construction Inspector with material submittals and shop drawings for all project materials prior to the construction of any gravity sewer line(s), manhole(s), sewer lift station(s) and associated force main(s) in Harnett County. The materials to be used on the project must meet the established specifications of HRW and be approved by the Engineer of Record prior to construction. All substandard materials or materials not approved for use in Harnett County found on the project site must be removed immediately when notified by the HRW Utility Construction Inspector.

E. The sanitary sewer lateral connections should be installed 90° (perpendicular) to the sanitary sewer gravity lines with schedule 40 PVC pipe. HRW requires the Utility Contractor to provide the Professional Engineer (PE) with accurate measurements for locating sanitary sewer service lateral and associated each sanitary sewer clean-out. These measurements should be taken from the nearest downstream manhole up along the sanitary sewer main to the in-line wye fitting (or tapping saddle) and then another measurement from the in-line wye fitting (or tapping to the 4"x 4"long sweep combination wye fitting at the bottom of the sewer clean-out stack. These field measurements must be provided to the Professional Engineer (PE) in the red line drawings from the Utility Contractor for proper documentation in the As-Built Record Drawings submitted to HRW.

F. The Utility Contractor shall be responsible to locate the newly installed sanitary sewer gravity line(s), sanitary sewer force main(s), sanitary sewer service lateral(s) and all associated sewer clean-out(s) in the proposed sanitary sewer system for other utility companies and their contractors until the new sanitary sewer line(s) and associated appurtenances have been approved by the North Carolina Department of Environmental Quality (NCDEQ) and accepted by HRW. All new sanitary sewer lines must have at least three (3 ft.) feet of cover and extend under all existing water main and storm water lines with a least 24" of vertical clearance below the bottom of the existing water main and storm water lines. ALL ductile iron sewer piping must be 401 epoxy coated or approved equal.

G. The sanitary sewer gravity line(s), manhole(s), sanitary sewer service lateral(s) and associated clean-out(s) shall be constructed in strict accordance with the standard specifications of the Harnett Regional Water. The sanitary sewer gravity line(s) must pneumatically pressure tested with compressed air at 5 psi and the sanitary sewer force main(s) must hydrostatically pressure tested with water or air at 200 psi. Sanitary sewer manholes must be vacuum tested to 10 inches of mercury and cannot drop below 9 inches in 60 seconds for 4 ft. diameter manholes, 75 seconds for 5 ft. diameter manholes. The test must be in accordance with the following standards: For ductile iron pipelines test in accordance with the applicable requirements of ASTM C924. For PVC pipelines test in accordance with ASTM F1417-98 and UBPPA UNI-B-6. Vacuum testing shall be performed in accordance with ASTM C1244. The HRW Utility Construction Inspector and Engineer must witness all tests mentioned above.

H. Prior to acceptance, all sewer service laterals will be inspected to insure that they are installed at the proper depth. All sewer clean-outs must be installed so the 4"x 4"long sweep combination wye is at least three (3') feet but no more than four (4') feet below the finish grade unless otherwise approved in writing by HRW. The sewer cleanouts shall have a four (4") schedule 40 PVC pipe stubbed up from both ends of the 4"x 4"long sweep combination wye to be at least two (2') feet above the finish grade and cover each end with a four (4") inch temporary cap to keep out dirt, sand, rocks, water and construction debris. The vertical stack on each clean-out must be provided with a concrete donut for protection.

I. Once the sanitary sewer gravity line(s) have been installed, pneumatically pressure tested and in place for at least 30 days, the Utility Contractor must contact the HRW Utility Construction Inspector to witness the mandrel test on each PVC sanitary sewer gravity line. The Utility Contractor will notify HRW to schedule the mandrel testing. The mandrel and proving ring must be supplied by the Utility Contractor. Closed circuit video camera inspections (at the Utility Contractor's expense) may be required by the HRW Utility Construction Inspector if the mandrel and mirror tamping testing cannot be completed with satisfactory results. The sanitary sewer lines should be flushed clean using a sewer ball of the proper diameter before any mandrel testing can be performed. The Utility Contractor is responsible to remove all dirt, sand, silt, gravel, mud and debris from the newly constructed sewer lines exercising care to keep the Harnett Regional Water's existing sanitary sewer systems clean. Sanitary sewer force main(s) shall be pressure tested to 200 psi for at least 2 hours like water lines.

J. The Utility Contractor shall be responsible to locate the newly installed sanitary sewer system(s) for other utility companies and their contractors until the new sanitary sewer system(s) have been approved by the North Carolina Department of Environmental Quality (NCDEQ) and accepted by HRW.

K. HRW requires that the Utility Contractor install tracer wire in the trench with all sanitary sewer force mains. The tracer wire shall be 12 ga. insulated, solid copper conductor and it shall be terminated at the top of the valve boxes or manholes. No spliced wire connections shall be made underground on tracer wire installed in Harnett County. The tracer wire may be secured with duct tape to the top of the pipe before backfilling. The tracer wire is not required for the gravity sewer line(s) between manholes.

L. The Utility Contractor shall provide the Professional Engineer and HRW Utility Construction Inspector with a set of red line drawings identifying the complete sewer system installed for each project. The red line drawings should identify the materials, pipe sizes and approximate depths of the sewer lines as well as the installed locations of the manhole(s), sanitary sewer gravity line(s), sanitary sewer service laterals, clean-outs, sewer lift station(s) and associated force main(s). The red line drawings should clearly identify any deviations from the NCDEQ approved plans. All change orders must be approved by HRW and the Professional Engineer (PE) in writing and properly documented in the red line field drawings.

M. Prior to the commencement of any work within established utility easements or NCDOT right-of-ways the Utility Contractor is required to notify all concerned utility companies in accordance with G.S. 87-102. The Utility Contractor must call the NC One Call Center at 811 or (800) 632-4949 to verify the location of existing utilities prior to the beginning of construction. Existing utilities shown in these plans are taken from maps furnished by various utility companies and have not been physically located by the P.E. (i.e. TELEPHONE, CABLE, WATER, SEWER, ELECTRICAL POWER, FIBER OPTIC, NATURAL GAS, ETC.).

N. The Utility Contractor shall spot dig to expose each existing utility pipe or line which may conflict with construction of proposed sanitary sewer line extensions well in advance to verify locations of the existing utilities. The Utility Contractor shall provide both horizontal and vertical clearances to the Professional Engineer (PE) to allow the PE to adjust the sanitary sewer line design in order to avoid conflicts with existing underground utilities. The Utility Contractor shall coordinate with the utility owner and be responsible for temporary relocation of existing utilities and/or securing existing utility poles, pipes, wires, cables, signs and/or utilities including services in accordance with the utility owner's requirements during sanitary sewer line installation, grading and street construction.

O. When making a tap on an existing sewer force main, the Utility Contractor must have a permit from the North Carolina Department of Environmental Quality (NCDEQ) prior to begin the tap work. The Utility Contractor shall conduct a pneumatic pressure test using compressed air or other inert gas on the stainless steel tapping sleeve and gate valve prior to making the tap on an existing sanitary sewer force main. This pneumatic pressure test must be witnessed by the HRW Utility Construction Inspector. The Utility Contractor shall use Romac brand stainless steel tapping sleeve(s) or approved equal for all taps made on sanitary sewer force mains in Harnett County. The Utility Contractor shall use Romac brand Style "CB" sewer saddles with stainless steel bands or approved equal for all taps made on existing sanitary sewer gravity lines in Harnett County.

P. The Utility Contractor shall provide a grease trap for each sanitary sewer service lateral that will be connected to a restaurant, food processing facility and any other commercial or industrial facility as required by the Harnett County Fat, Oil & Grease Ordinance. The grease trap must be rated for a minimum capacity of at least 1,000 gallons unless otherwise approved in writing by the HRW Pre-Treatment Coordinator. Garbage disposals should not be installed in homes and businesses that discharge wastewater to the Harnett Regional Water's Sanitary Sewer System as they are not approved by HRW.

Q. Each sewer lift station must be provided with three phase power (at least 480 volts) and constructed to meet the minimum requirements of the latest version of the National Electrical Code and Harnett Regional Water standard specifications and details. If three phase power is not available from the power company other arrangements must be approved by HRW Engineering prior to the start of construction.

R. Where a new sanitary sewer force main is connected to an existing manhole in the Harnett Regional Water sewer collections system, the Utility Contractor must provide a protective coating (epoxy) for the interior surfaces of the manhole to protect it against corrosion, erosion and deterioration from the release of sewer gases such as methane and hydrogen sulfide.

S. The sewer lift station design and associated equipment must meet or exceed the MINIMUM REQUIREMENTS FOR HARNETT COUNTY SEWER LIFT STATIONS. Each sanitary sewer lift station must be constructed with an all-weather access road that is at least 20 feet wide. The lift station site must be covered with weed blocking material and at least six (6") inches of ABC stone (crush and run).

T. Once a sewer lift station has been installed, the Utility Contractor is responsible to schedule a draw down test with HRW Engineering and Collections staff, the Professional Engineer (PE), the Electrician, the original equipment manufacturers (OEM) representatives [For both the Pumps and the Generator]. This draw down test must be completed with power supplied from the electrical utility company and with power supplied by the emergency generator with satisfactory results before final inspections are conducted by the HRW Utility Construction Inspector.

U. Once the Utility Contractor completes the installation of a sewer lift station, the Professional Engineer (PE) must submit the sewer permit certification and As-Built Record Drawings to the North Carolina Department of Environmental Quality (NCDEQ) and HRW for final approval. The Utility Contractor must supply HRW Engineering staff with three original Operation & Maintenance (O&M) Manuals along with the associated pump curves and electrical schematics for the associated sewer lift station equipment including all warranty information and documentation.

V. Once the Utility Contractor completes the installation of a sewer lift station, the Developer must pay HRW the established System Control and Data Acquisition (SCADA) fees before the SCADA system will be installed at the new sewer lift station. The SCADA system must be installed and operational before the utilities may be accepted by HRW and placed into operation.

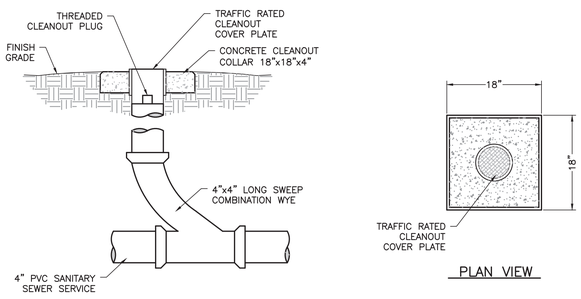
W. HRW requires the Utility Contractor to provide all necessary equipment and devices for the testing and inspection of the sanitary sewer system. The equipment and devices may include but not limited to lamping with mirrors, mandrels, sewer balls, plugs, air compressors and associated compressed air lines. If the HRW Utility Construction Inspector deems that a closed circuit video camera inspection of the newly constructed sewer system is necessary, then all costs for the closed circuit camera inspection will be the responsibility of the Utility Contractor. All closed circuit video camera inspections must be recorded on VHS tapes that will released to HRW for record keeping, review and approval of the sewer system.

X. Any use of sewer plugs to temporarily block Harnett Regional Water's existing sanitary sewer lines must be coordinated with the HRW Collections Supervisor at least two (2) days in advance of installing the plugs. The sewer plugs must be removed as soon as possible once the new sanitary sewer lines have been inspected, pressure tested, mandrel tested, approved by the North Carolina Department of Environmental Quality (NCDEQ) and accepted by HRW to allow the sewer to flow as designed in Harnett Regional Water's existing sanitary sewer lines or when so ordered by the HRW Collections Supervisor to limit interruptions to the normal flow of the sanitary sewer collection system(s). The Utility Contractor must provide the pumps hoses and necessary connectors for a temporary pump around setup if required by the HRW Collections Supervisor. Mr. Randolph Clegg, HRW Collections Supervisor may be contacted between 8:00 am and 5:00 pm Monday through Friday at (910) 893-7575 extension 3241.

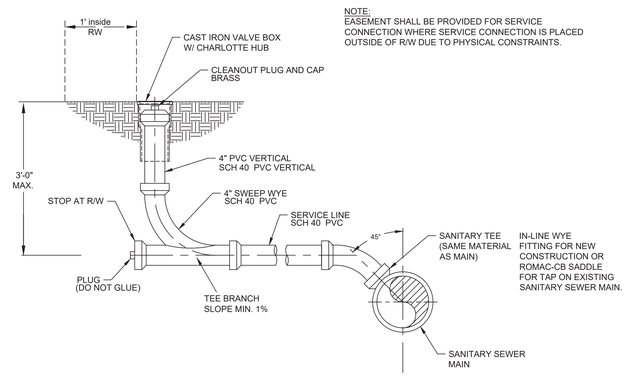
Y. The Utility Contractor will be responsible for any and all repairs due to leakage or damage resulting from poor workmanship during the one (1) year warranty period once the sewer system improvements have been approved by the North Carolina Department of Environmental Quality (NCDEQ) and accepted by The Utility Contractor will be responsible for any and all repairs due to damages resulting from failure to locate the new sanitary sewer lines and associated appurtenances for other utilities and their contractors until the sanitary sewer lines have been approved by NCDEQ and accepted by HRW. HRW will provide maintenance and warranty repairs if necessary due to lack of response within 48 hours of notification of warranty HRW will invoice the Developer and/or Utility Contractor for materials and labor in such cases.

Z. In developments and projects that require utility easements to be established for future HRW right-of-way, the Registered Land Surveyor (RLS) must provide the HRW Right-of-Way Agent with an official copy of the recorded plat and legal description of the said easement as recorded with the Harnett County Register of Deeds. The recorded documents must be provided to the HRW Right-of-Way Agent before the utility improvements within the said easement can be placed into operation. Any and all easements that must be obtained from adjoining property owners must be provided to HRW by the Developer at no cost to Harnett County. The final inspection of all sanitary sewer system improvements cannot be scheduled with HRW until the streets have been paved; the rights-of-way and utility easements have been seeded and stabilized with an adequate stand of grass in place to prevent erosion issues on site.

AA. No field changes to the approved plans are allowed without prior written approval by HRW. A copy of each engineer's field report is to be submitted to HRW as each such inspection is made on system improvements or testing is performed by the contractor. Water and sewer infrastructure must pass all tests required by HRW specifications and those of all applicable regulatory agencies. These tests include, but are not limited to: air test, vacuum test, mandrel test, visual test, pressure test, bacteriological test, etc. A HRW Inspector must be present during testing and all test results shall be submitted to HRW. All tests must be satisfied before the final inspection will be scheduled with the HRW Inspector. The Engineer of Record must request in writing to schedule the final inspection once all construction is complete. The Developer's Engineer of Record and the HRW Utility Construction Inspector shall prepare a written punch list of any defects or deficiencies noted during the final inspection, should any exist. Upon completion of the punch list, the Developer's Engineer of Record will schedule another inspection. In the event the number of inspections performed by the HRW exceeds two, additional fees may be accessed to the Developer.



1 SANITARY SEWER CLEANOUT
NOT TO SCALE



2 TYPICAL SEWER SERVICE CONNECTION
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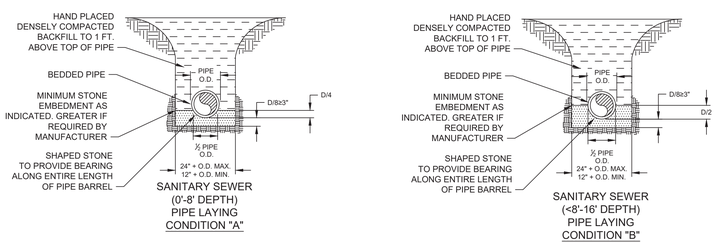
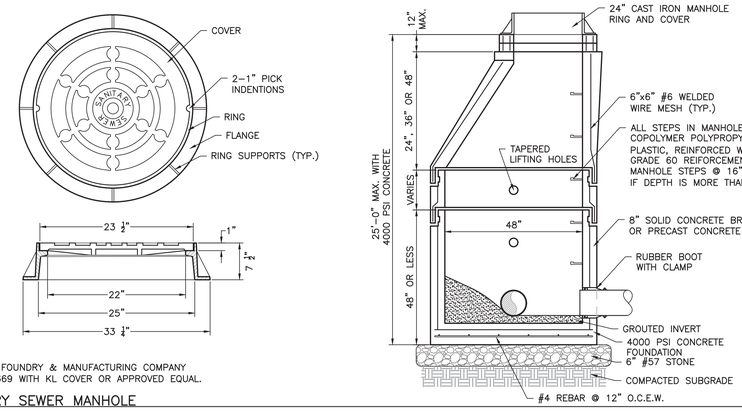


3 TYPICAL PIPE LAYING CONDITION
NOT TO SCALE



4 SANITARY SEWER MANHOLE
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043255 ENGINEERS PHILIP A. PICERNO
1-28-22
LKC Engineering Landscape Architecture Surveying
140 Auga Shed Ct., Aberdeen, NC 28315
Office: 910-420-1437 Fax: 910-420-1438
lkcengineering.com License No. P-1095

Harnett County Schools
Johnsonville Elementary School Addition/Renovation-Phase 2
18495 NC-27 W, Cameron, NC 28326

ENERGY STAR PARTNER

ID	DATE	DESCRIPTION
ISSUE DATE:		01-28-2022
PROJECT #:		02103.000
DRAWN BY:		MFL
CHECKED BY:		PAP

SANITARY SEWER NOTES & DETAILS

D-501

TYPE C BUFFER ALONG NC HWY 27*

BUFFER LENGTH (MINUS DRIVES):	722'
LARGE TREES REQUIRED (@ 1 PER 30'):	24
LARGE TREES PROVIDED:	9
SMALL/ MEDIUM TREES PROVIDED (@ 2 PER LARGE TREE REQUIRED)	30 (EQUALS 15 LARGE TREEES)
TOTAL LARGE TREE EQUIVALENCY PROVIDED:	24
SHRUBS REQUIRED (@ 5 PER LARGE TREE):	120
SHRUBS PROVIDED:	120

* NOTE: THE REQUIRED BUFFER AREA ALONG NC HWY 27 IS IN A WATER LINE EASEMENT AND AN OVERHEAD POWER LINE EASEMENT.

PLANT SCHEDULE

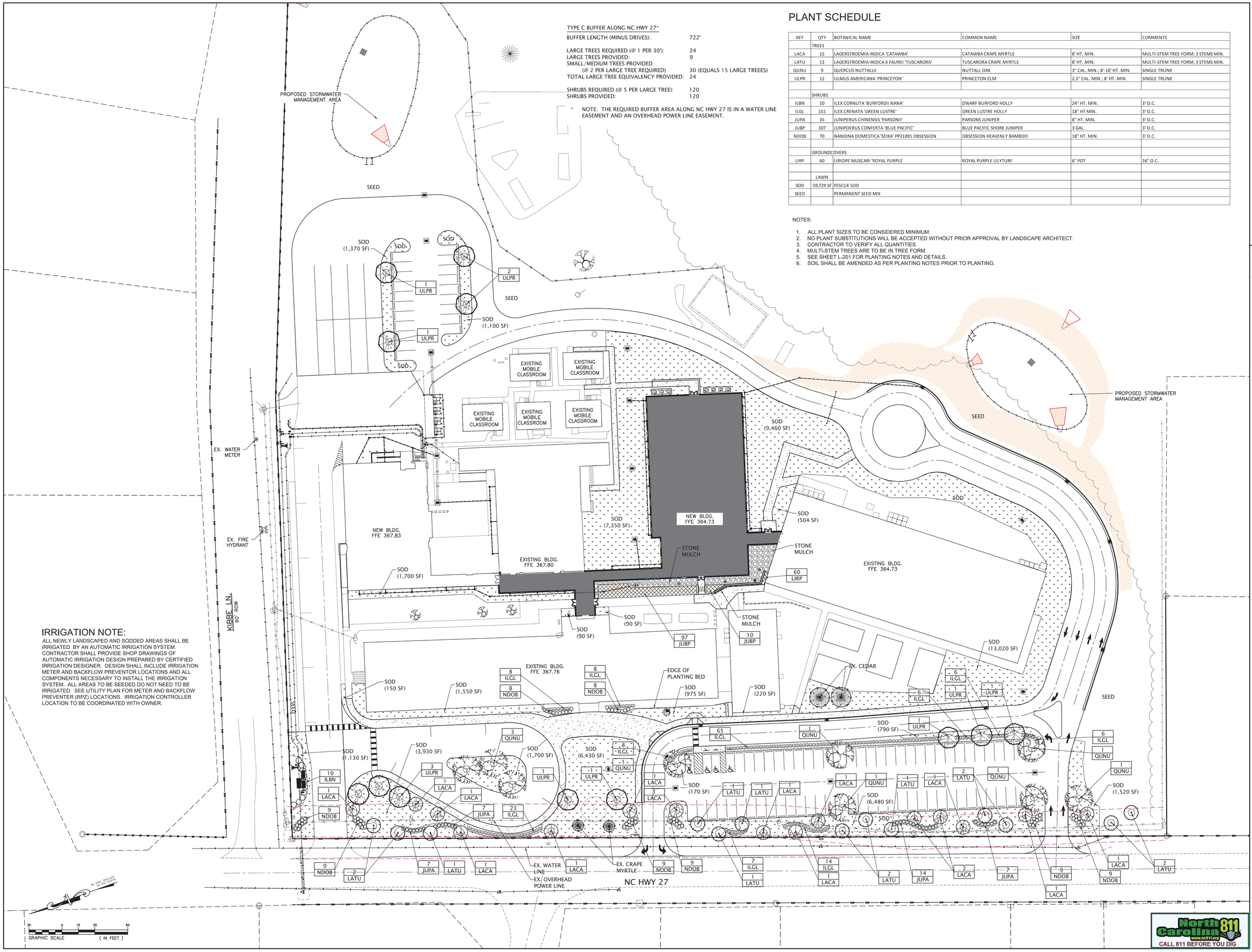
KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	COMMENTS
	TREES				
LACA	15	LAGERSTROEMIA INDICA 'CATAWBA'	CATAWBA CRAPE MYRTLE	8' HT. MIN.	MULTI-STEM TREE FORM; 3 STEMS MIN.
LATU	13	LAGERSTROEMIA INDICA X FAUREI 'TUSCARORA'	TUSCARORA CRAPE MYRTLE	8' HT. MIN.	MULTI-STEM TREE FORM; 3 STEMS MIN.
QUNU	9	QUERCUS NUTTALLII	NUTTALL OAK	3" CAL. MIN.; 8'-10' HT. MIN.	SINGLE TRUNK
ULPR	12	ULMUS AMERICANA 'PRINCETON'	PRINCETON ELM	2.5" CAL. MIN.; 8' HT. MIN.	SINGLE TRUNK
	SHRUBS				
ILBN	10	ILEX CORNUTA 'BURFORDII NANA'	DWARF BURFORD HOLLY	24" HT. MIN.	3' O.C.
ILGL	151	ILEX CRENATA 'GREEN LUSTRE'	GREEN LUSTRE HOLLY	18" HT MIN.	3' O.C.
JUPA	35	JUNIPERUS CHINENSIS 'PARSONII'	PARSONS JUNIPER	8" HT. MIN.	3' O.C.
JUBP	107	JUNIPOERUS CONFERTA 'BLUE PACIFIC'	BLUE PACIFIC SHORE JUNIPER	3 GAL.	3' O.C.
NDOB	70	NANDINA DOMESTICA 'SEIKA' PP21891 OBSESSION	OBSESSION HEAVENLY BAMBOO	18" HT. MIN.	3' O.C.
	GROUNDCOVERS				
LIRP	60	LIRIOPE MUSCARI 'ROYAL PURPLE	ROYAL PURPLE LILYTURF	6" POT	16" O.C.
	LAWN				
SOD	59,729 SF	FESCUE SOD			
SEED		PERMANENT SEED MIX			

NOTES:

1. ALL PLANT SIZES TO BE CONSIDERED MINIMUM.
2. NO PLANT SUBSTITUTIONS WILL BE ACCEPTED WITHOUT PRIOR APPROVAL BY LANDSCAPE ARCHITECT.
3. CONTRACTOR TO VERIFY ALL QUANTITIES.
4. MULTI-STEM TREES ARE TO BE IN TREE FORM.
5. SEE SHEET L-201 FOR PLANTING NOTES AND DETAILS.
6. SOIL SHALL BE AMENDED AS PER PLANTING NOTES PRIOR TO PLANTING.

IRRIGATION NOTE:

ALL NEWLY LANDSCAPED AND SODDED AREAS SHALL BE IRRIGATED BY AN AUTOMATIC IRRIGATION SYSTEM. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF AUTOMATIC IRRIGATION DESIGN PREPARED BY CERTIFIED IRRIGATION DESIGNER. DESIGN SHALL INCLUDE IRRIGATION METER AND BACKFLOW PREVENTOR LOCATIONS AND ALL COMPONENTS NECESSARY TO INSTALL THE IRRIGATION SYSTEM. ALL AREAS TO BE SEEDED DO NOT NEED TO BE IRRIGATED. SEE UTILITY PLAN FOR METER AND BACKFLOW PREVENTER (RPZ) LOCATIONS. IRRIGATION CONTROLLER LOCATION TO BE COORDINATED WITH OWNER.



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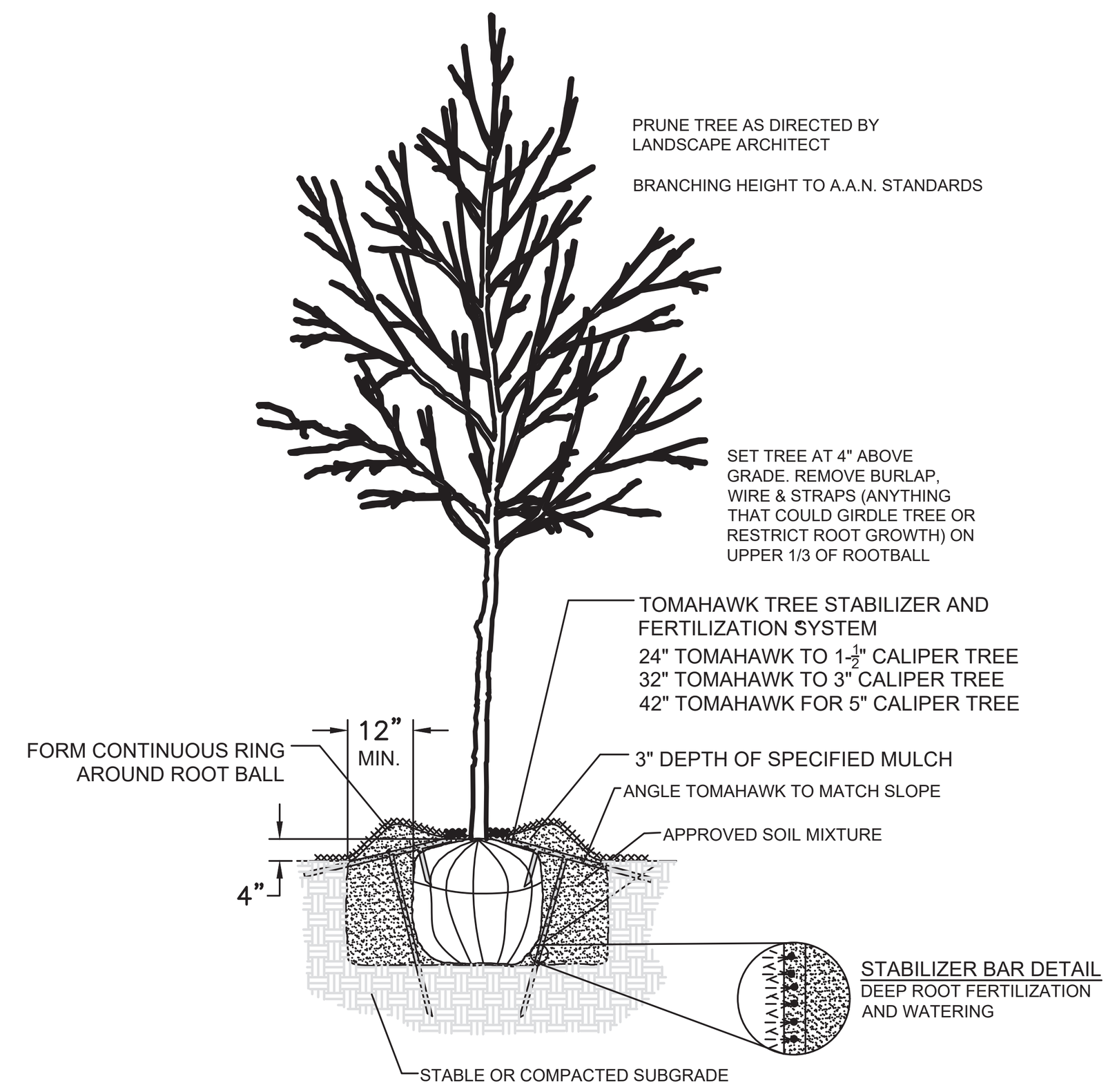
ENERGY STAR PARTNER

ID	DATE	DESCRIPTION

ISSUE DATE: 01-28-2022
PROJECT #: 02103.000
DRAWN BY: PH
CHECKED BY: PAP

PLANTING PLAN

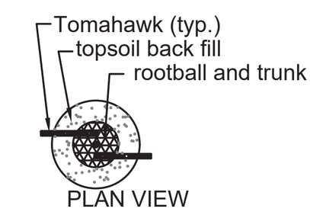
L-101



1 TREE PLANTING DETAIL
NOT TO SCALE

TOMAHAWK™ TREE STABILIZER SPECIFICATION

MANUFACTURER: BORDER CONCEPTS, INC.
P. O. BOX 471185
CHARLOTTE, NORTH CAROLINA 28247
TOLL FREE: 800-845-3343
FAX: 704-541-5610
WWW.BORDERCONCEPTS.COM
INFO@BORDERCONCEPTS.COM

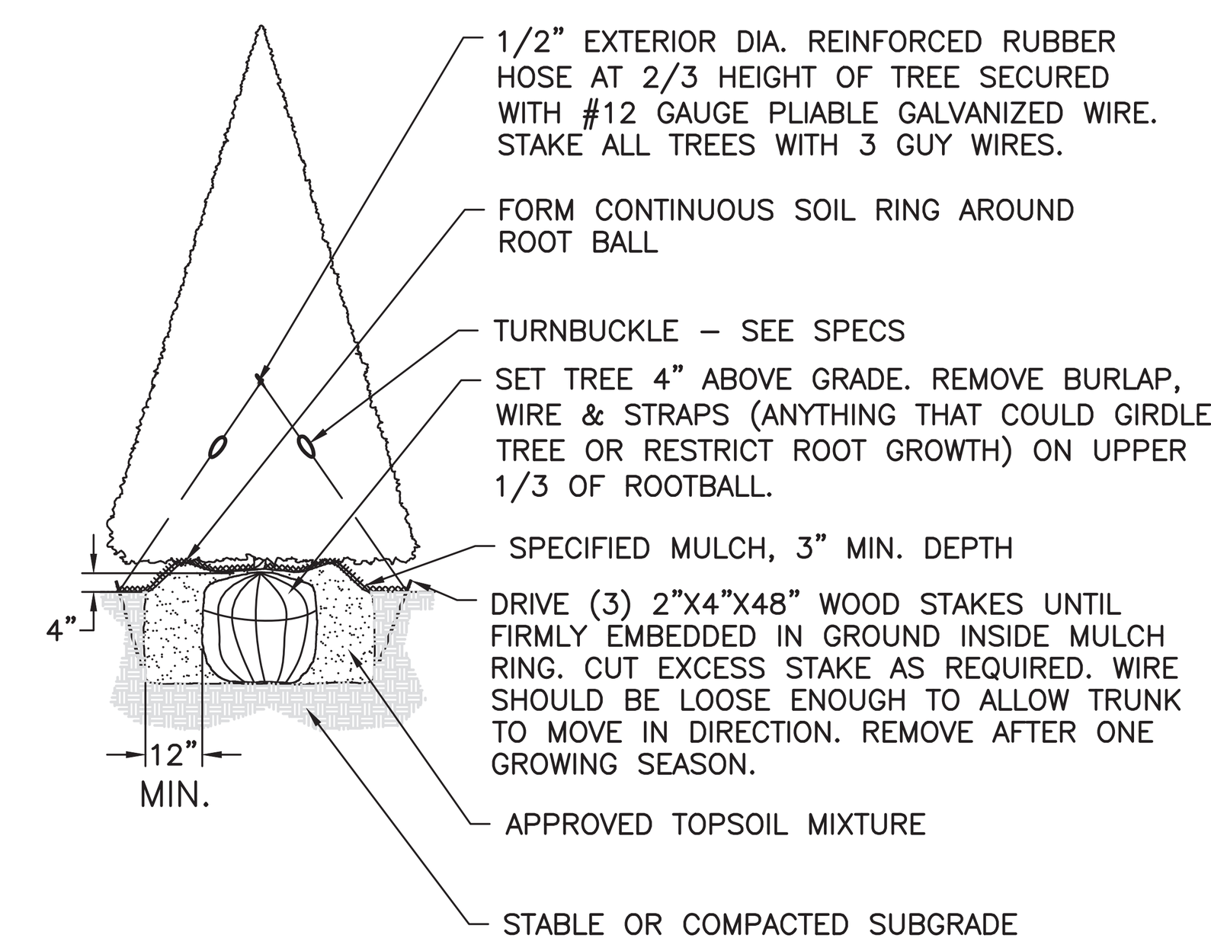


DESCRIPTION: TOMAHAWK™ TREE STABILIZER AND FERTILIZATION SYSTEM TO BE PROVIDED BY BORDER CONCEPTS, INC.

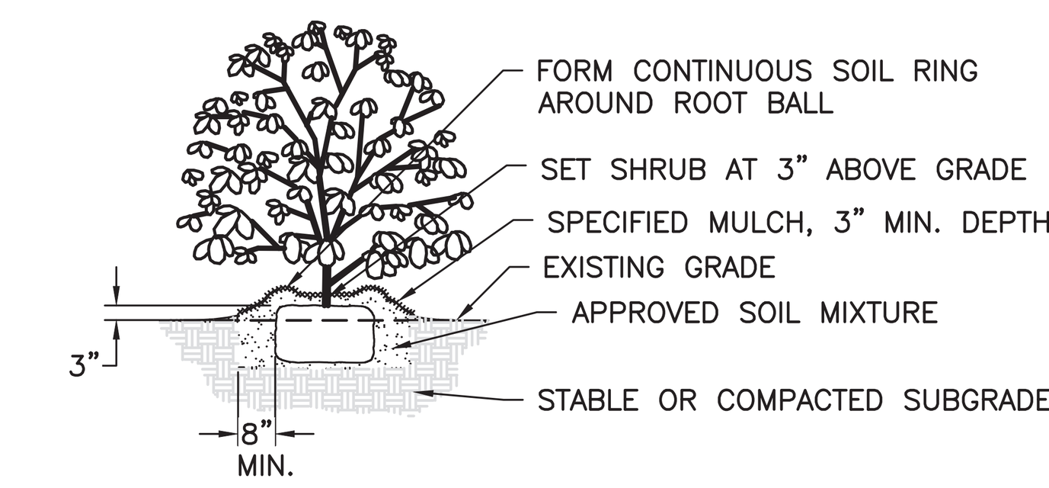
RECOMMENDED SIZES TO USE:
24" TSS - FOR USE ON TREES UP TO 1.5" CALIPER TREE
32" TSS - FOR USE ON TREES UP TO 3" CALIPER TREE
42" TSS - FOR USE ON TREES UP TO 5" CALIPER TREE
+ALWAYS USE DRIVING TOOL (INCLUDED IN EACH CASE) TO INSTALL
+NOTCHED FOR GUYING IN EXTREME WINDS

NOTE: IN CERTAIN CONDITIONS SUCH AS HEAVY WINDS, LOOSE SOIL CONDITIONS, HEAVY FOLIAGED TREES, OR LARGER DIAMETER TREES 3 OR 4 TOMAHAWK™ SHOULD BE INSTALLED.
DETERMINE THE CORRECT SIZE TOMAHAWK™ BY MEASURING THE ROOT BALL SIZE. THE OUTSIDE LONG SUPPORT SHOULD EXCEED AT LEAST 8" OF UNDISTURBED SOIL BELOW THE ROOT BALL.

INSTALLATION:
INSTALL PER PLANS OR DETAIL AND AS PER MANUFACTURER'S RECOMMENDATIONS



2 EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE



3 SHRUB PLANTING DETAIL
NOT TO SCALE

GENERAL PLANTING NOTES:

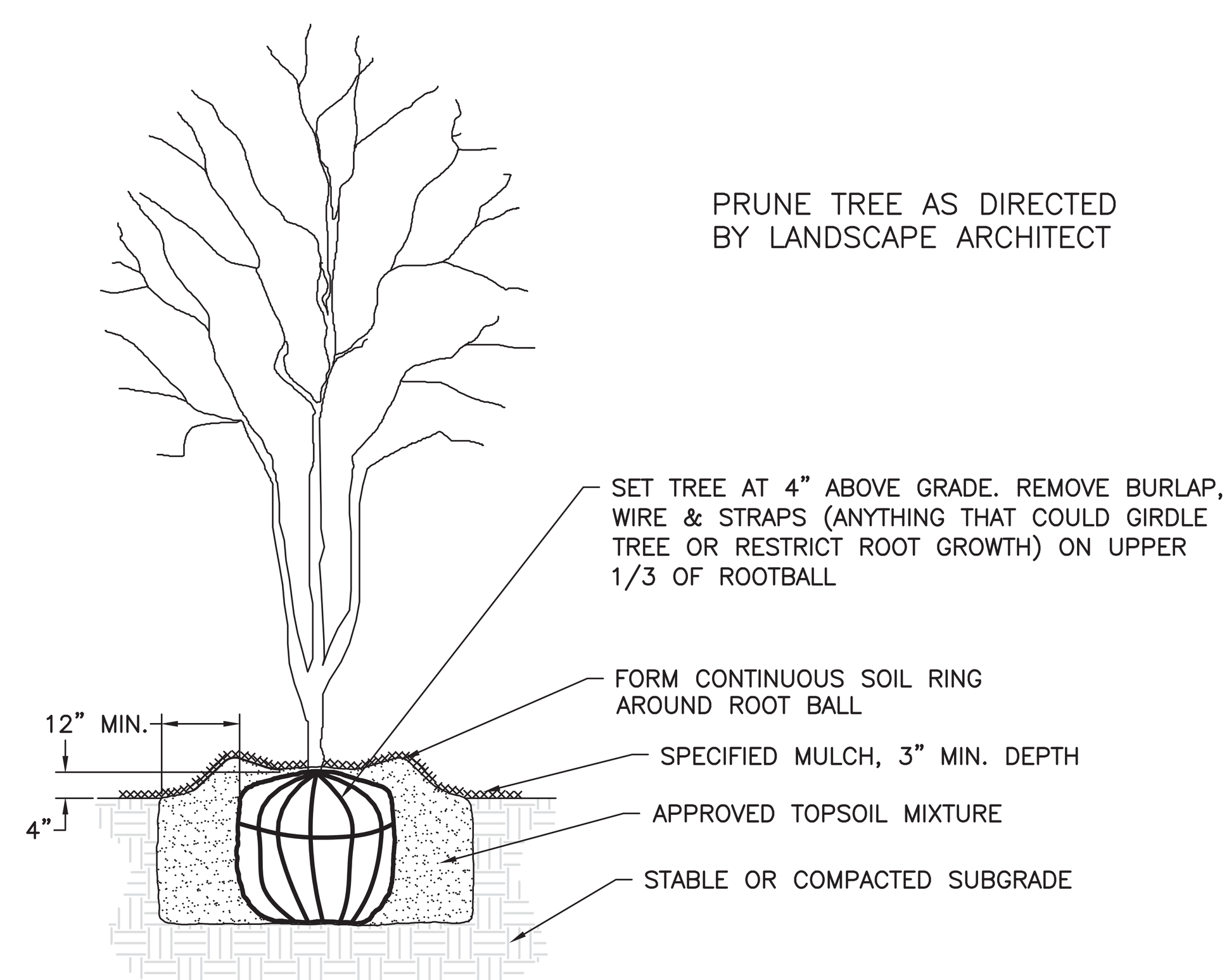
1. All areas to be sodded shall receive 4" loam soil or approved existing soil. All shrub bed and groundcover areas shall receive 12" loam soil unless otherwise indicated in planting details. All imported loam soil used shall meet the following standards (existing soil may be used provided that it is amended at the specified depth to meet the following standards.):

   Imported (or existing) soil shall be tested for mechanical gradation, percent of organics, chemical analysis, and acidity. Based on the testing, the soil shall be amended as per the recommendations of the local agricultural extension service. At a minimum, the soil shall:

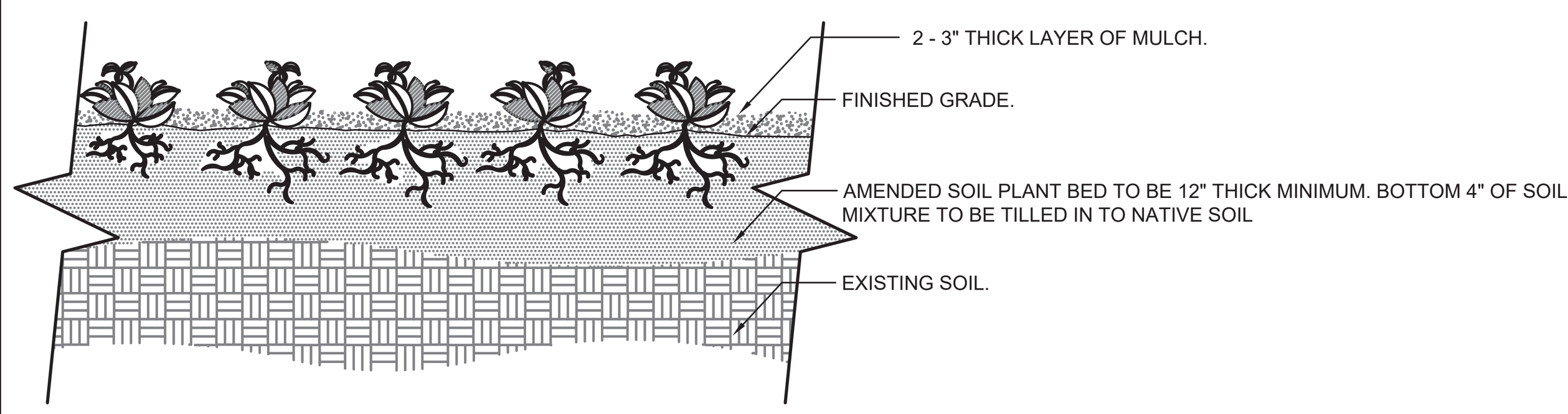
   a. Be free of stones greater than 2", debris, lumps, plants and their roots.
   b. Contain no toxic substances.
   c. Contain between 3% and 8% organic matter.
   d. Have a pH range between 5.6 and 6.5.

2. Locate all utilities prior to beginning planting and irrigation work. Report any conflicts immediately to Landscape Architect.
3. Field verify all conditions. Report any discrepancies to Landscape Architect prior to beginning work.
4. Plant locations are approximate. Field staking should be done to avoid underground utilities.
5. Shrub beds to receive 3" continuous pine straw mulch. Provide continuous pine straw mulch (3" thick) at the base of specimen trees in a 3' minimum radius.
6. Any rows or groups of more than one shrub, or tree shall be mulched together, not as individual.
7. Sizes of plant material given are to be considered minimum.
8. No substitutions for plant material are acceptable unless approved by the Landscape Architect.
9. See additional planting and detail sheets for planting schedule and details.
10. Tie new irrigation into existing irrigation system. Utilize available five (5) zones in existing irrigation clock for new drip zones.
11. Provide three (3) quick couplers with irrigation system. Coordinate location with Landscape Architect.
12. All plantings to be installed with a one year replacement warranty. The warranty period shall begin upon final acceptance of the completed landscape and irrigation.
13. The contractor shall make arrangements with competent reliable sources to ensure that an adequate supply of the required plant material is available. This shall be completed a minimum of three months prior to planting time to allow for plant collections, storage, and preparation. Contractor is responsible for installing all plant material in the appropriate season for each plant type.
14. All plant material received from commercial nurseries shall conform to the current issue of the American Standard for Nursery Stock published by the American Association of Nurserymen, except where otherwise specified.
15. All plant material, unless otherwise specified, shall be uniformly branched and have a vigorous root system. Plant material shall be healthy, vigorous and free from defects, decay, abrasions of the bark, plant diseases, insect pest eggs, and all forms of infestations. All plant material shall be fresh, free from transplant shock or visible wilt. Unhealthy stock is unacceptable. Plants from cold storage are unacceptable.
16. Plant material shall be inspected by the Landscape Architect upon arrival at the project site. The Landscape Architect reserves the right to reject or accept any plant material following final inspection.
17. Plants not installed on the day of arrival at the site will be stored and protected. Outside storage locations will be continually shaded and protected from the wind and sun. Plants stored on site will be protected from any drying at all times by covering the balls or roots with moist sawdust, wet burlap, woodchips, shredded bark, peat moss, or other similar mulching material.
18. Osmocote, nutricote, or other controlled release commercial grade granular free flowing (18-6-12) fertilizer shall be applied in each planting hole according to manufacturer's label or other specifications. The selection of fertilizer and all application specifications shall be approved by Landscape Architect prior to construction.
19. The contractor shall be responsible for any damage to existing conditions as a result of its work performed during the contract period.
20. The contractor shall be responsible for confirming all plant quantities for bidding purposes.

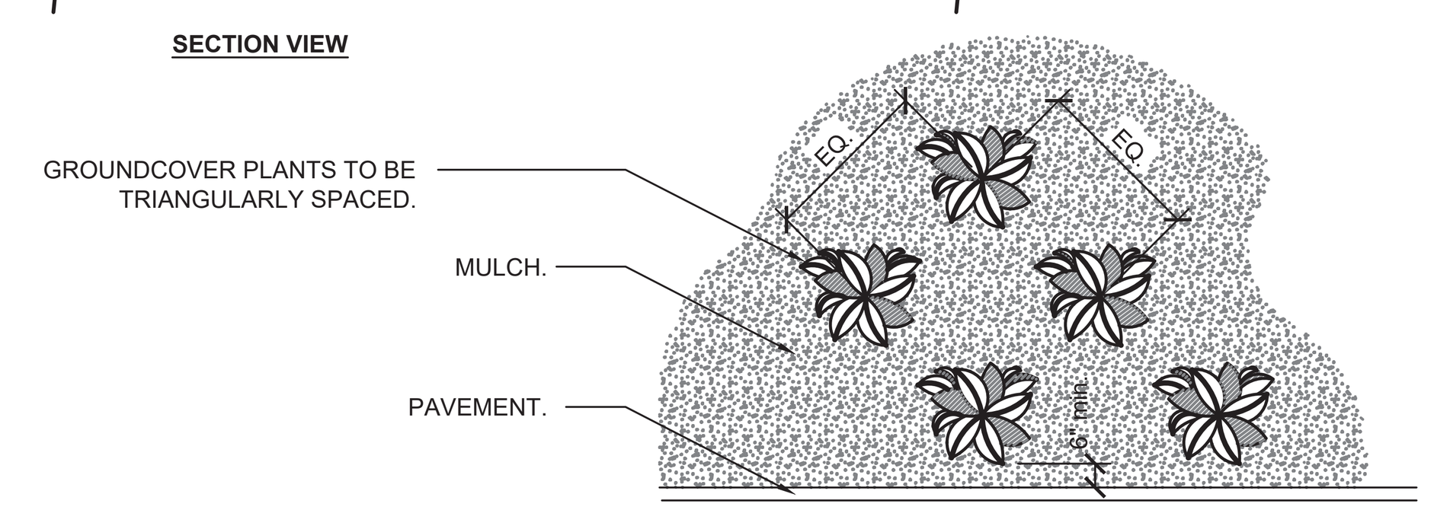
4



5 MULTI-STEM TREE PLANTING DETAIL
NOT TO SCALE



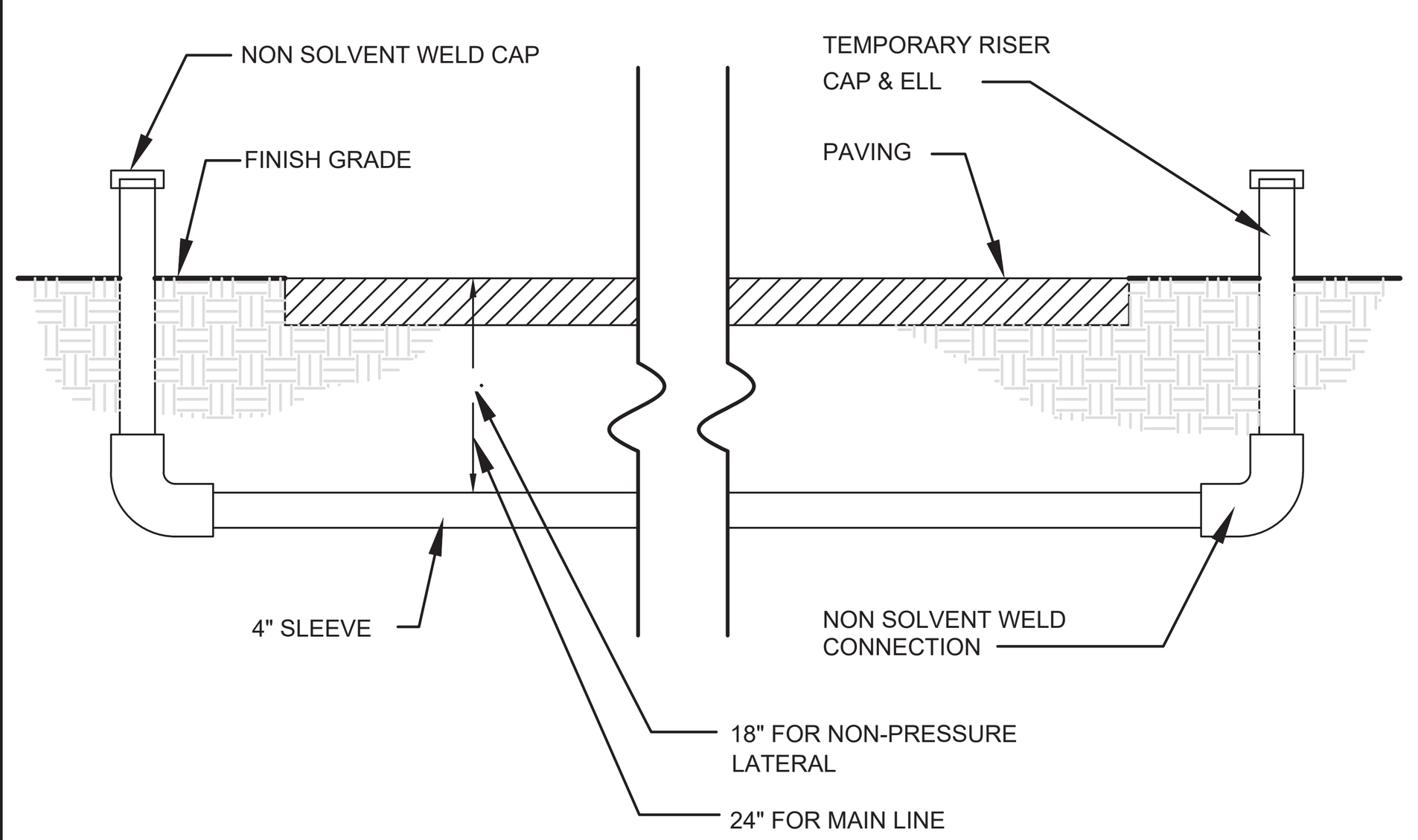
SECTION VIEW



PLAN

NOTES:
1- SEE PLANTING LEGEND FOR GROUNDCOVER SPECIES, SIZE, AND SPACING DIMENSION.
2- SMALL ROOTS (¼" OR LESS) THAT GROW AROUND, UP, OR DOWN THE ROOT BALL PERIPHERY ARE CONSIDERED A NORMAL CONDITION IN CONTAINER PRODUCTION AND ARE ACCEPTABLE HOWEVER THEY SHOULD BE ELIMINATED AT THE TIME OF PLANTING. ROOTS ON THE PERIPERHY CAPAN CAN BE REMOVED AT THE TIME OF PLANTING.
3- SETTLE SOIL AROUND ROOT BALL OF EACH GROUNDCOVER PRIOR TO MULCHING.

6



ALL SLEEVES SHALL BE HIGH IMPACT, TYPE 2110, SCHEDULE 40 PVC

7 TYPICAL SLEEVING DETAIL
NOT TO SCALE

8

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13

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PLANTING DETAILS

L-201