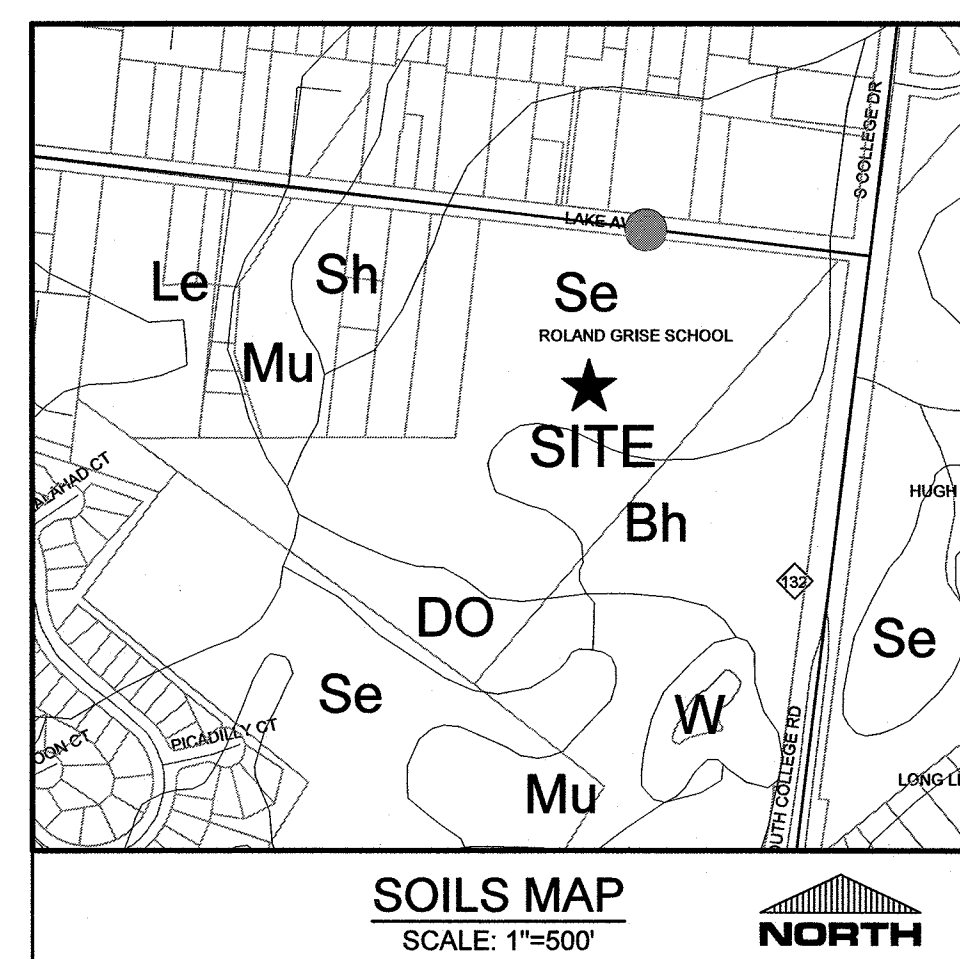
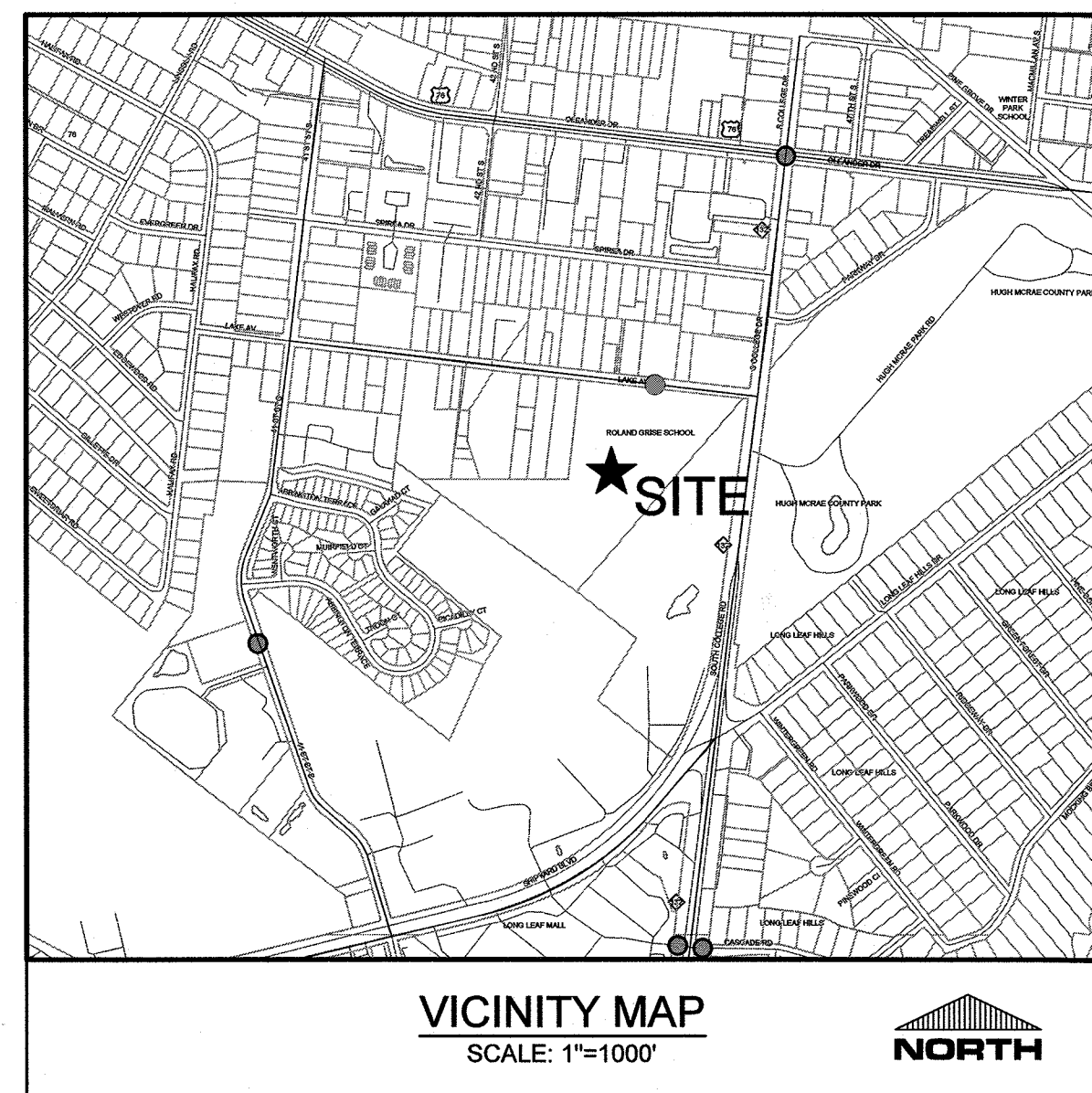


ROLAND GRISE MIDDLE SCHOOL RENOVATIONS

4412 LAKE AVENUE
WILMINGTON, NORTH CAROLINA 28403
CONSTRUCTION DOCUMENTS

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.	NCDENR PWSS WATER PERMIT #:	_____
	WATER CAPACITY:	_____ GPD
	DWQ SEWER PERMIT #:	_____
	SEWER CAPACITY:	_____ GPD
	SEWER SHED # AND PLANT:	_____
	SEWER TO FLOW THROUGH NEI:	YES or NO (CIRCLE ONE)
Approved Construction Plan		
Name	Date	
Planning <i>Nicole D. Smith</i>	<i>6/20/18</i>	
Traffic <i>W. Smith</i>	<i>6-20-18</i>	
Fire <i>B. J. P.</i>	<i>6-21-18</i>	
City of WILMINGTON Public Services • Engineering Division		APPROVED STORMWATER MANAGEMENT PLAN
Date: <i>6/21/18</i>		Date: <i>2018024</i>
Signed: <i>[Signature]</i>		



NOTICE REQUIRED

ALL EXISTING UNDERGROUND UTILITIES SHALL BE PHYSICALLY LOCATED PRIOR TO THE BEGINNING OF ANY CONSTRUCTION IN THE VICINITY OF SAID UTILITIES.

CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION.

CONTRACTORS SHALL CONTACT OVERHEAD ELECTRIC PROVIDER TO COMPLY WITH FEDERAL OSHA 1910.333 MINIMUM APPROACH DISTANCE TO ENERGIZED POWERLINES AND OSH 29 CFR 1926.1407-1411 MUST BE FOLLOWED.

CONTRACTOR SHALL CONTACT AT&T PRIOR TO ANY DEMOLITION TO ALLOW FOR AT&T TO DISCONNECT COMMUNICATIONS CABLES COMING INTO THE SITE.

CONTACT THESE UTILITIES

CITY OF WILMINGTON PLANNING & DEVELOPMENT
ATTN: NICOLE SMITH, PLANNER
PH: 910-341-1611

ATTN: ZONING INSPECTIONS
PH: 910-254-0900

PIEDMONT NATURAL GAS
ATTN: CATHY PLEASANT
PH: 910-261-2827

EMERGENCY DIAL 911
POLICE - FIRE - RESCUE
ATTN: CITY OF WILMINGTON FIRE & LIFE SAFETY
PH: 910-343-0696

CAPE FEAR PUBLIC UTILITY AUTHORITY (WATER & SEWER)
ENGINEERING/INSPECTIONS
PH: 910-332-6560

OPERATIONS/MAINTENANCE
PH: 910-322-6550

DUKE ENERGY
DISTRIBUTION CONSTRUCTION SERVICE
MARK HATFIELD
PH: 910-350-3428

TRANSMISSION AGENT
BILL WILDER
PH: 910-772-4903

AT&T/BELL SOUTH
ATTN: STEVE DAYVAULT (BUILDING ENGINEERING)
PH: 910-341-0741

ATTN: JAMES BATSON, ENGINEERING
PH: 910-341-1621

SPECTRUM
GEN. PH: 910-763-4638

OWNER / DEVELOPER:
NEW HANOVER COUNTY SCHOOLS
6410 CAROLINA BEACH ROAD
WILMINGTON, NORTH CAROLINA 28412
ATTN: BOBBY THOMAS (910) 254-4443

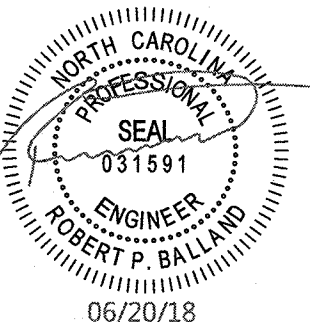
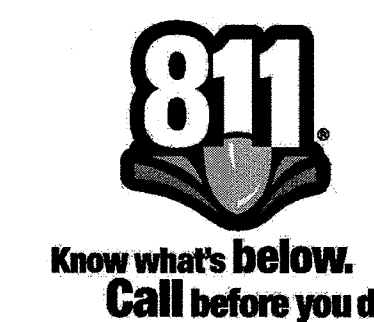
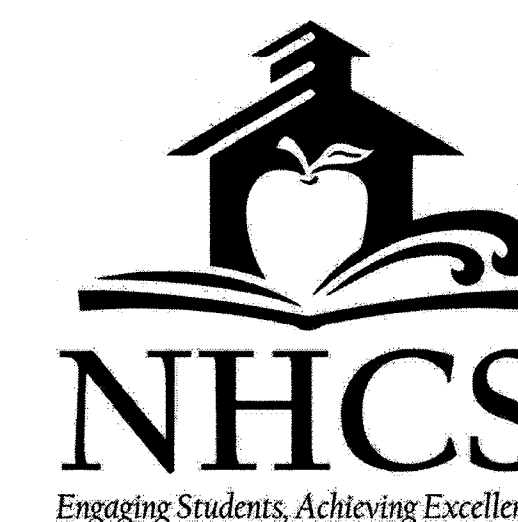
ENGINEER (CIVIL) & LANDSCAPE ARCHITECT:
PARAMOUNTE ENGINEERING, INC.
122 CINEMA DRIVE
WILMINGTON, NORTH CAROLINA 28403
ATTN: ROB BALLAND, P.E. (910) 791-6707

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
C-0.0	COVER SHEET
C-1.0	GENERAL NOTES
C-2.0	DEMOLITION & TREE REMOVAL PLAN
C-2.1	OVERALL SITE PLAN
C-2.2 - C-2.3	SITE PLAN
C-2.4	SITE INVENTORY MAP
C-3.0 - C-3.1	GRADING, DRAINAGE, E.C. PLAN
C-4.0 - C-4.1	UTILITY PLAN
C-5.0 - C-5.5	DETAILS
L-1.0	LANDSCAPE PLAN

PREPARED BY:

PARAMOUNTE
ENGINEERING, INC.

122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846
PROJECT # 17215.PE



RELEASED FOR CONSTRUCTION

COORDINATION NOTES:

- 1. THE CONTRACTOR IS REQUIRED TO OBTAIN ANY ALL PERMITS REQUIRED FOR CONSTRUCTION OF THESE PLANS.
2. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH PERMITS ISSUED AND WITH THE CITY OF WILMINGTON, NEW HANOVER COUNTY, CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPUA), AND THE STATE OF NORTH CAROLINA.
3. THE CONTRACTOR IS TO ESTABLISH AND CHECK ALL HORIZONTAL AND VERTICAL CONTROLS TO BE USED WITH THE PROJECT.
4. ANYTIME WORK IS PERFORMED OFF-SITE OR WITHIN AN EXISTING EASEMENT, THE CONTRACTOR IS TO NOTIFY THE HOLDER OF SAID EASEMENT AS TO THE NATURE OF PROPOSED WORK, AND TO FOLLOW ANY GUIDELINES OR STANDARDS WHICH ARE ASSOCIATED WITH OR REFERENCED IN THE RECORDED EASEMENT.

GENERAL NOTES:

- 1. TREE INVENTORY AND TOPOGRAPHIC SURVEY COMPLETED BY WK DICKSON AND SEALED ON SEPTEMBER 28, 2017. THE SURVEY SHALL BE FIELD VERIFIED BY CONTRACTOR AND ANY DISCREPANCIES REPORTED TO THE OWNER AND ENGINEER.
2. REASONABLE CARE HAS BEEN EXERCISED IN SHOWING THE LOCATION OF EXISTING UTILITIES ON THE PLANS. THE EXACT LOCATION OF ALL EXISTING UTILITIES IS NOT KNOWN IN ALL CASES. THE CONTRACTOR SHALL EXPLORE THE AREA AHEAD OF DITCHING OPERATIONS BY OBSERVATIONS, ELECTRONIC DEVICES, HAND DIGGING AND BY PERSONAL CONTACT WITH THE UTILITY COMPANIES.
3. CONTRACTOR SHALL COMPLY WITH THE LATEST REVISIONS AND INTERPRETATIONS OF THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION FROMLGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT.
4. CONTRACTOR SHALL PLAN AND CONSTRUCT WORK SO AS TO CAUSE MINIMUM INCONVENIENCE TO THE OWNER AND THE PUBLIC.
5. ALL MATERIAL CLEARED OR DEMOLISHED BY THE CONTRACTOR IN ORDER TO CONSTRUCT THE WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE.
6. ALL WORK BY THE CONTRACTOR SHALL BE WARRANTED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR AFTER THE OWNER ACCEPTS THE WORK.

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

- 1. THE EROSION CONTROL PLAN SHALL INCLUDE PROVISIONS FOR GROUND COVER ON ALL EXPOSED PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1 WITHIN 7 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY.
2. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL HANDBOOK.
3. THE CONTRACTOR SHALL NOTIFY PLAN APPROVING AUTHORITY ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO FINAL INSPECTION.
4. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO CLEARING AND/OR LAND DISTURBANCE.
5. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND PERMIT SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

DEMOLITION NOTES:

- 1. CONTRACTOR TO COORDINATE WITH THE OWNER TO PROPERLY MAINTAIN OR RELOCATE EXISTING SERVICE CONNECTIONS WHEN NECESSARY.
2. CONTRACTOR IS TO WALK THE SITE AND BECOME FAMILIAR WITH THE SCOPE OF DEMOLITION REQUIRED. ALL DEMOLITION WORK REQUIRED TO CONSTRUCT NEW SITE IMPROVEMENTS WILL BE PERFORMED BY THE CONTRACTOR AND WILL BE CONSIDERED UNCLASSIFIED EXCAVATION.
3. DEMOLITION SHALL INCLUDE BUT IS NOT LIMITED TO THE EXCAVATION, HAULING AND OFFSITE DISPOSAL OF CONCRETE PADS, CONCRETE DITCHES, FOUNDATIONS, SLABS, STEPS, AND STRUCTURES, ABANDONED UTILITIES, BUILDINGS, PAVEMENTS AND ALL MATERIALS CLEARED AND STRIPPED TO THE EXTENT NECESSARY AS DIRECTED BY THE GEOTECHNICAL ENGINEER FOR THE INSTALLATION OF THE NEW IMPROVEMENTS AND WITHIN THE LIMITS OF CLEARING AND GRADING AND AS SHOWN ON THESE PLANS.
4. THE CONTRACTOR SHALL PROTECT ALL ADJACENT PROPERTY, STRUCTURES AND UTILITIES ON THE PROPERTY NOT TO BE DEMOLISHED.
5. ELECTRIC, TELEPHONE, SANITARY SEWER, WATER AND STORM SEWER UTILITIES THAT SERVICE OFF-SITE PROPERTIES SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS BY THE CONTRACTOR.

TRAFFIC NOTES:

- 1. ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY & FOR DRIVEWAY(S) ARE TO BE THERMOPLASTIC & MEET CITY OF WILMINGTON AND/OR NCDOT STANDARDS.
2. TRAFFIC CONTROL DEVICES (INCLUDING SIGNS AND PAVEMENT MARKINGS) IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.
3. ALL TRAFFIC CONTROL SIGNS AND MARKINGS NOT WITHIN THE PUBLIC RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
4. ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.

EROSION CONTROL AND SEQUENCE OF CONSTRUCTION NOTES:

- NOTE: THESE EROSION CONTROL AND SEQUENCE OF CONSTRUCTION NOTES ARE INTENDED FOR EACH "PHASE" OF CONSTRUCTION. THE ORDER AND STEPS TAKEN MUST BE IMPLEMENTED AS EACH PART OF THE PROJECT IS DEVELOPED, WHETHER AS A WHOLE OR IN PHASES.
1. CONSTRUCT TEMPORARY GRAVEL CONSTRUCTION ENTRANCE(S). ESTABLISH THE LIMITS OF DISTURBANCE, TREE PROTECTION FENCING, AND TEMPORARY SILT FENCE.
2. CLEAR AND REMOVE FROM SITE TREES AS DESIGNATED, ROOTS, ROOT MAT, ETC. FROM THE AREA WITHIN THE DESIGNATED CLEARING LIMITS.
3. INSTALL REMAINING EROSION CONTROL MEASURES AS SHOWN ON THE PLANS WITHIN THE AREA DISTURBED. ALL EROSION CONTROL MEASURES MUST BE INSTALLED BEFORE COMMENCING CONSTRUCTION.

EROSION CONTROL MAINTENANCE PLAN:

- 1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF. PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK.
2. ALL CONSTRUCTION ENTRANCES WILL BE PERIODICALLY TOP DRESSED WITH AN ADDITIONAL 2 INCHES OF #4 STONE TO MAINTAIN PROPER DEPTH. ANY SEDIMENT THAT IS TRACKED INTO THE STREET WILL BE IMMEDIATELY REMOVED.
3. SEDIMENT WILL BE REMOVED BEHIND THE SEDIMENT FENCE WHEN IT BECOMES 0.5 FEET DEEP AT THE FENCE. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. SILT FENCE STAKES WILL BE SPACED 6 FEET APART UNLESS A WIRE BACKING IS USED WITH 8 FOOT STAKE SPACING.

Table with 4 columns: GRASS TYPE, LBS/ ACRE, TIME OF SEEDING, FERTILIZER LIMESTONE. Rows include Bermuda (hulled/unhulled), Centipede, Tall Fescue, and Slopes >= 2:1 Centipede Sericea Lespedeza.

Table with 4 columns: GRASS TYPE, LBS/ ACRE, TIME OF SEEDING, FERTILIZER LIMESTONE. Rows include Rye Grain, Sweet Sudan Grass, German or Broomtop Millet, and Straw Mulch.

NEW HANOVER COUNTY LAND QUALITY STABILIZATION TIME FRAME NOTE: DENuded AREAS MUST BE STABILIZED WITH FIFTEEN (15) WORKING DAYS OF CEASE OF ANY PHASE OF ACTIVITY. ALL SLOPES MUST BE STABILIZED WITHIN TWENTY-ONE (21) CALENDAR DAYS OF CEASE OF ANY PHASE OF ACTIVITY.

Table with 3 columns: SITE AREA DESCRIPTION, STABILIZATION TIMEFRAME, EXCEPTIONS. Includes perimeter dikes, high quality water, slopes steeper than 3:1, etc.

NC ACCESSIBILITY NOTES:

- 1. SPECIAL ATTENTION SHALL BE GIVEN TO COMPLIANCE WITH AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), THE NORTH CAROLINA BUILDING CODE (ANSI A117.1, AND APPLICABLE LOCAL LAWS & REGULATIONS.
2. IT IS ESSENTIAL THAT CONTRACTORS ARE AWARE OF THE SITE ACCESSIBILITY REQUIREMENTS. PARAMOUNT ENGINEERING HAS DEVELOPED THESE NOTES AND DETAILS TO ASSURE THAT CONTRACTORS ARE AWARE OF THE REQUIREMENTS AT THE POINT IN TIME WHEN THEY ARE BIDDING THE PROJECT.
3. THE CONTRACTOR SHALL NOTIFY PARAMOUNT ENGINEERING IMMEDIATELY OF ANY CONFLICT BETWEEN THESE NOTES AND DETAILS AND OTHER PROJECT DRAWINGS.
4. THESE ACCESSIBILITY NOTES AND DETAILS ARE INTENDED TO DEPCT SLOPE AND DIMENSIONAL REQUIREMENTS ONLY. REFER TO SIDEWALK, CURBING, AND PAVEMENT DETAILS FOR ADDITIONAL INFORMATION.
5. AT LEAST ONE ACCESSIBLE ROUTE SHALL BE PROVIDED WITHIN THE SITE FROM ACCESSIBLE PARKING SPACES AND ACCESSIBLE PASSENGER LOADING ZONES, PUBLIC STREETS OR SIDEWALKS, AND PUBLIC TRANSPORTATION STOPS TO THE ACCESSIBLE BUILDING OR FACILITY ENTRANCE THEY SERVE.

RAMP NOTES:

- 1. ANY PART OF AN ACCESSIBLE ROUTE WITH A RUNNING SLOPE GREATER THAN 5% SHALL BE CONSIDERED A RAMP.
2. THE MAXIMUM RUNNING SLOPE FOR A RAMP SHALL BE 8.33% AND THE MAXIMUM CROSS SLOPE SHALL BE 2.0%.
3. THE CLEAR WIDTH OF AN EXTERIOR RAMP RUN SHALL BE FORTY EIGHT INCHES (NC BUILDING CODE 1104.1).
4. THE RISE FOR ANY RAMP RUN SHALL BE THIRTY (30) INCHES MAXIMUM.

CURB RAMP NOTES:

- 1. THE MAXIMUM RUNNING SLOPE OF A CURB RAMP SHALL BE 8.33% AND THE MAXIMUM CROSS SLOPE SHALL BE 2.0%.
2. COUNTER SLOPES OF ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT TO THE CURB RAMP SHALL NOT BE STEEPER THAN 5%.
3. THE CLEAR WIDTH OF A CURB RAMP SHALL BE 36 INCHES (36) MINIMUM, EXCLUSIVE OF FLARED SIDES, IF PROVIDED.
4. LANDINGS SHALL BE PROVIDED AT THE TOP OF CURB RAMPS. THE CLEAR LENGTH OF THE LANDING SHALL BE THIRTY-SIX (36) INCHES MINIMUM.

NC ACCESSIBILITY NOTES CONTD.

PARKING SPACE NOTES:

- 1. ACCESSIBLE PARKING SPACES SHALL BE LOCATED ON THE SHORTEST ACCESSIBLE ROUTES OF TRAVEL FROM ADJACENT PARKING TO AN ACCESSIBLE BUILDING ENTRANCE.
2. ACCESSIBLE PARKING SPACES SHALL BE AT LEAST NINETY-SIX (96) INCHES WIDE. ACCESS AISLES SHALL BE 60 INCHES WIDE.
3. PARKING ACCESS AISLES SHALL BE PART OF AN ACCESSIBLE ROUTE TO THE BUILDING OR FACILITY ENTRANCE AND SHALL COMPLY WITH PROVISIONS FOR ACCESSIBLE ROUTES.
4. TWO (2) ACCESSIBLE PARKING SPACES MAY SHARE A COMMON ACCESS AISLE.
5. ACCESS AISLES SHALL EXTEND THE FULL LENGTH OF THE PARKING SPACE THEY SERVE.
6. ACCESS AISLES SHALL BE MARKED SO AS TO DISCOURAGE PARKING IN THEM.
7. ACCESS AISLES SHALL NOT OVERLAP THE VEHICULAR WAY. ACCESS AISLES SHALL BE PERMITTED TO BE PLACED ON EITHER SIDE OF THE PARKING SPACE EXCEPT FOR ANGLED VAN PARKING SPACES WHICH SHALL HAVE ACCESS AISLES LOCATED ON THE PASSENGER SIDE OF THE PARKING SPACES.

PASSENGER LOADING ZONE NOTES:

- 1. PASSENGER LOADING ZONES SHALL PROVIDE VEHICULAR PULL-UP SPACE NINETY-SIX (96) INCHES WIDE MINIMUM AND TWENTY (20) FEET LONG MINIMUM.
2. PASSENGER LOADING ZONES SHALL PROVIDE A CLEARLY MARKED ACCESS AISLE THAT IS SIXTY (60) INCHES WIDE MINIMUM AND EXTENDS THE FULL LENGTH OF THE VEHICLE PULL-UP SPACE THEY SERVE.
3. ACCESS AISLE SHALL ADJOIN AN ACCESSIBLE ROUTE AND NOT OVERLAP THE VEHICULAR WAY.
4. VEHICLE PULL-UP SPACES AND ACCESS AISLES SERVING THEM SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 2.0% IN ALL DIRECTIONS.

ACCESSIBLE ENTRANCE NOTES:

- 1. ACCESSIBLE ENTRANCES SHALL BE PROVIDED AS REQUIRED BY THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS) AND THE NORTH CAROLINA BUILDING CODE, AND APPLICABLE LOCAL LAWS & REGULATIONS.
2. ENTRANCE DOORS, DOORWAYS AND GATES SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS) AND THE NORTH CAROLINA BUILDING CODE AND SHALL BE ON AN ACCESSIBLE ROUTE.
3. ALL STORM SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF WILMINGTON REQUIREMENTS AS SPECIFIED ON THE DRAWINGS AND IN THE PROJECT SPECIFICATIONS.

EXISTING UTILITY NOTES:

- 1. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO VERIFY THE ACTUAL LOCATION AND AVAILABILITY OF ALL EXISTING AND PROPOSED UTILITIES IN THE FIELD PRIOR TO GROUND BREAKING.
2. EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON A FIELD SURVEY AND THE BEST AVAILABLE RECORD DRAWINGS.

WETLAND NOTES:

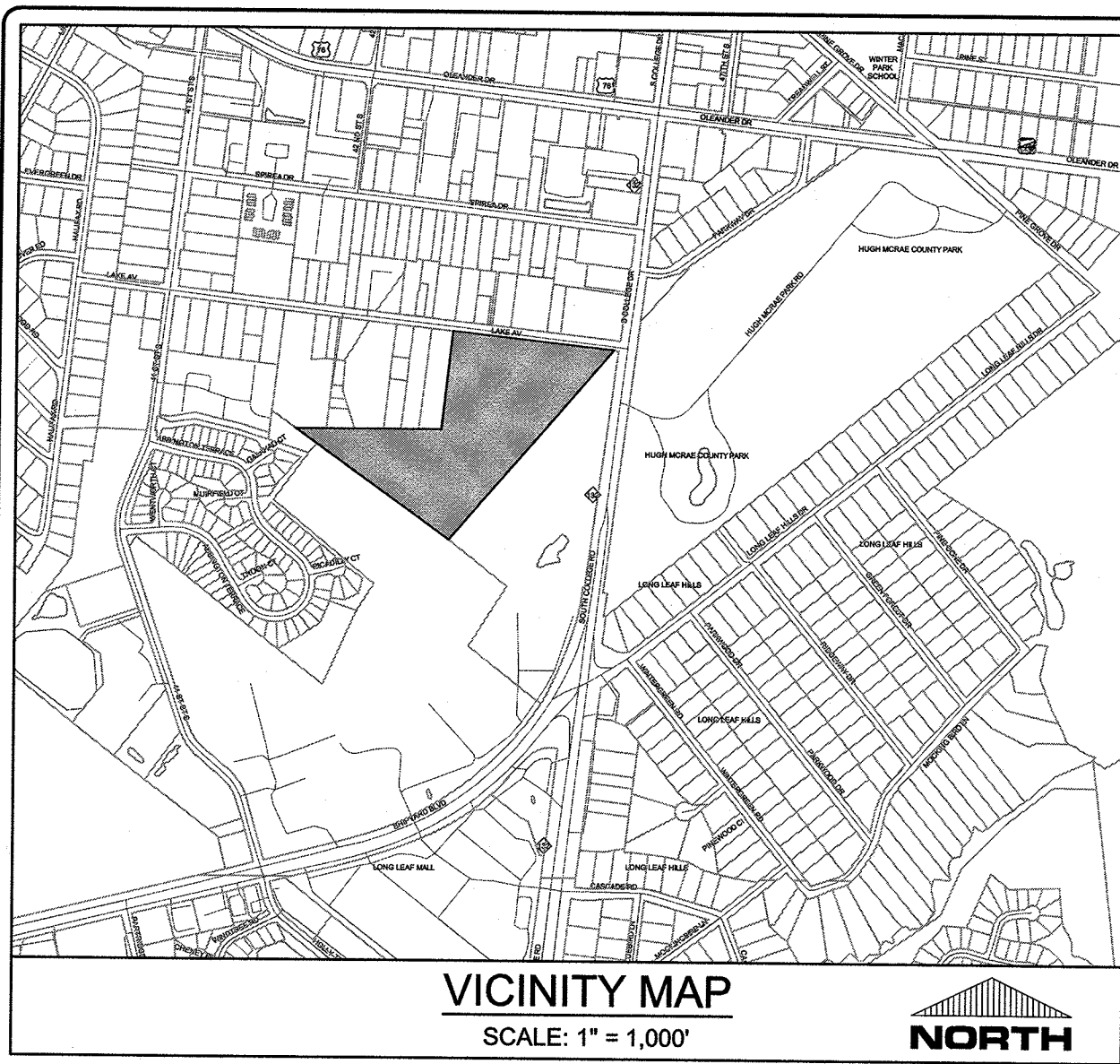
- 1) THERE ARE NO WETLANDS FLAGGED AND SURVEYED ON THE PROPERTY.

Approved Construction Plan form with fields for Name, Date, Permit #, Capacity, and other project details. Includes logos for 811 and the City of Wilmington.

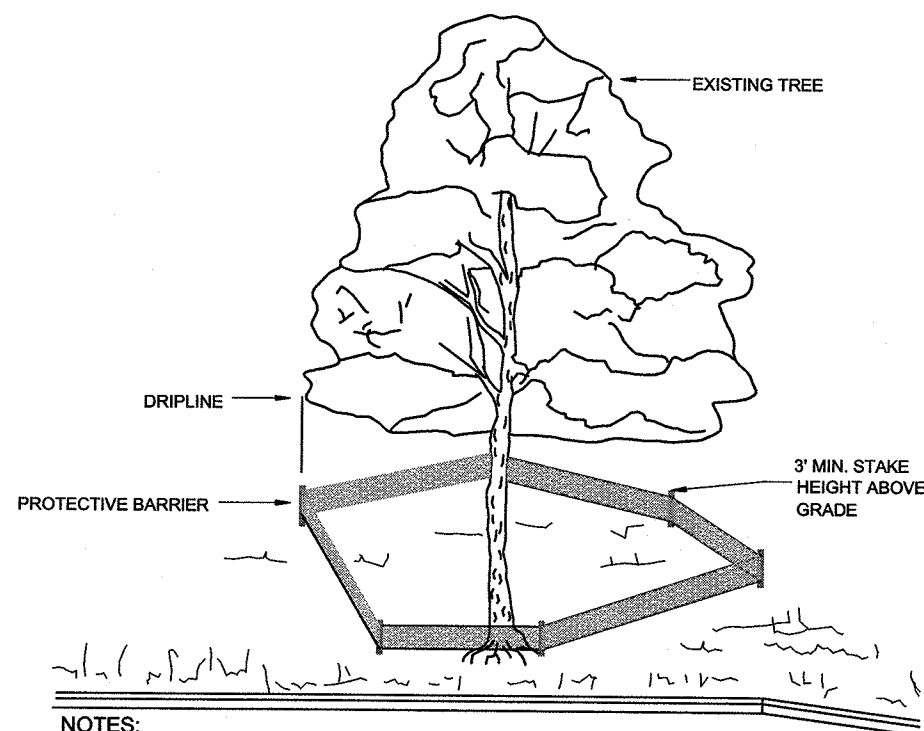


Vertical sidebar containing: REVISIONS table, CLIENT INFORMATION (Becker Morgan Group, Inc.), GENERAL NOTES, PROJECT STATUS, DRAWING INFORMATION, PROJECT INFORMATION, and PEI JOB#: 17215.PE.

RELEASED FOR CONSTRUCTION

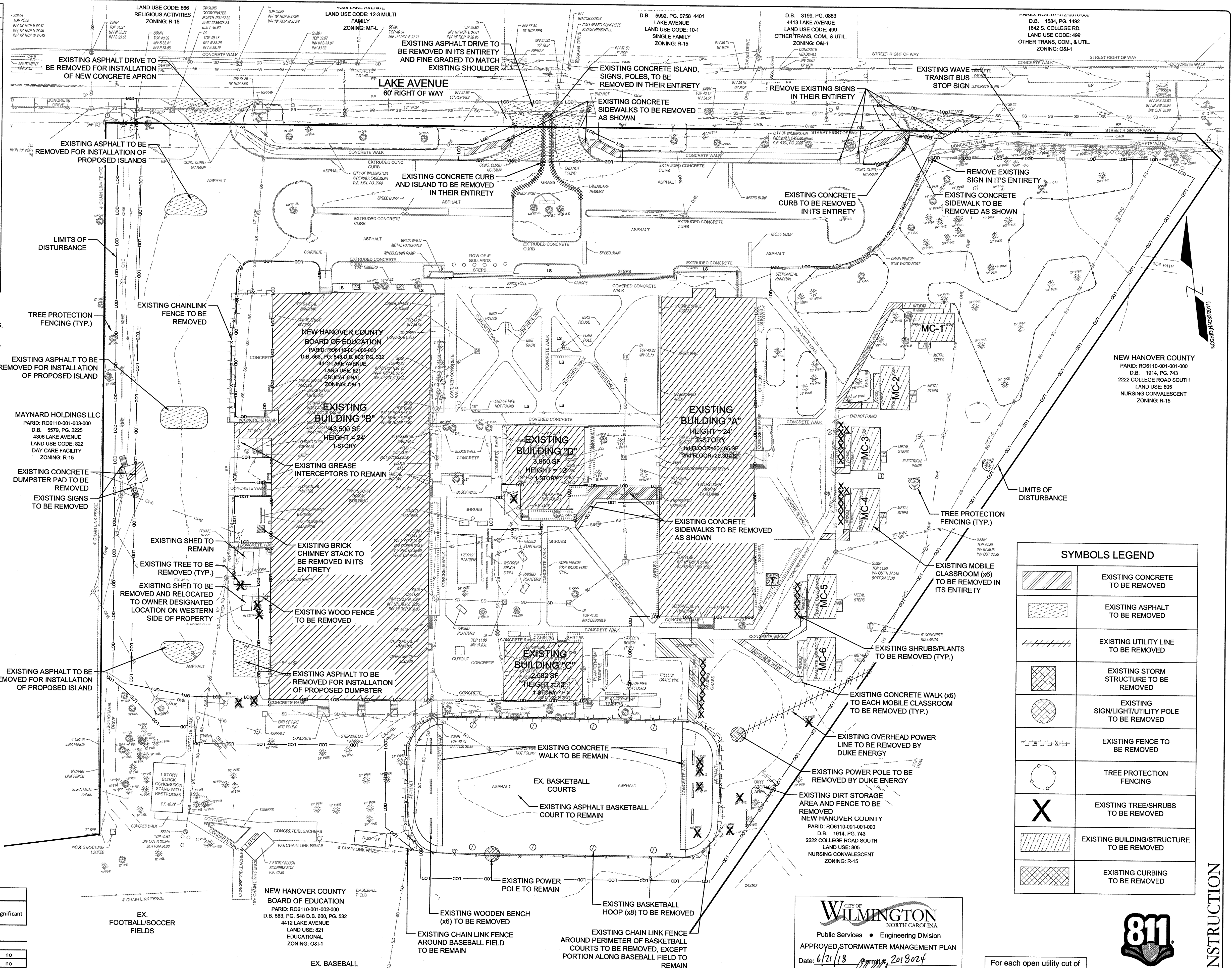


- DEMOLITION NOTES:**
- CONTRACTOR SHALL REFER TO SHEET C-1.0 GENERAL NOTES FOR DEMOLITION NOTES.
 - CONTRACTOR SHALL REFER TO THE LANDSCAPE PLANS FOR SPECIFIC TREE REMOVAL.
 - CONTRACTOR SHALL MAKE NO PAVEMENT CUTS INTO LAKE AVENUE WITHOUT THE WRITTEN PERMISSION OF NCDOT.
 - ALL UTILITIES SHALL BE ABANDONED AND/OR DEMOLISHED AND CAPPED PROPERLY IN ACCORDANCE WITH THE UTILITY OWNERS RULES AND REGULATIONS.
 - CONTRACTOR SHALL COORDINATE WITH ELECTRIC UTILITY OWNER/PROVIDER FOR DEMOLITION.
- EX. VEGETATION NOTES:**
- CONTRACTOR SHALL REMOVE SHRUBS AS NECESSARY ALONG THE BUILDINGS FOR CONSTRUCTION AS LONG AS THE SAME QUANTITY AND SPECIES ARE REPLACED WHEN CONSTRUCTION IS COMPLETE.



- NOTES:**
- TREES TO BE SAVED WILL BE CLEARLY MARKED PRIOR TO CONSTRUCTION
 - INSTALLATION OF PROTECTION FENCING IS REQUIRED PRIOR TO LAND DISTURBING ACTIVITY AND IS TO BE MAINTAINED UNTIL AFTER FINAL SITE INSPECTION
 - FENCING SHALL BE INSTALLED AT THE DRIPLINE OR AT THE BOUNDARY OF THE CRITICAL ROOT ZONE, WHICHEVER IS GREATER
 - DIAPHRAGM - THE AREA OF SOIL DIRECTLY BENEATH THE TREE EXTENDING OUT TO THE TIPS OF THE OUTERMOST BRANCHES
 - CRITICAL ROOT ZONE - 1" RADIUS FROM THE TREE TRUNK PER 1" CALIBER

A METHOD OF TREE PROTECTION DURING CONSTRUCTION



SYMBOLS LEGEND

	EXISTING CONCRETE TO BE REMOVED
	EXISTING ASPHALT TO BE REMOVED
	EXISTING UTILITY LINE TO BE REMOVED
	EXISTING STORM STRUCTURE TO BE REMOVED
	EXISTING SIGN/LIGHT/UTILITY POLE TO BE REMOVED
	EXISTING FENCE TO BE REMOVED
	TREE PROTECTION FENCING
	EXISTING TREES/SHRUBS TO BE REMOVED
	EXISTING BUILDING/STRUCTURE TO BE REMOVED
	EXISTING CURBING TO BE REMOVED

Roland Grise Tree Removal & Required Mitigation

Qty of Trees	Caliper Inches*	Tree Common Name	City Tree Type Classification	Total Cal. Inches to be Removed	% Mitigation	Significant
REGULATED & SIGNIFICANT TREES						
1	10	OAK	hardwood	10	100%	no
1	11	OAK	hardwood	11	100%	no
1	8	OAK	hardwood	8	100%	no
1		MYRTLE	hardwood	0	100%	no
Total Category 1 Significant Trees: 0						
Category 2 (75% Mitigation)						
1	12	GUM (SWEETGUM)	hardwood	12	75%	no
1	20	GUM (SWEETGUM)	hardwood	20	75%	no
1	22	GUM (SWEETGUM)	hardwood	22	75%	no
1	10	CEDAR	conifer	10	75%	no
Total Category 2 Significant Trees: 0						
Category 3 (50% Mitigation)						
2	16	PINE (LOBLOLLY)	conifer	32	50%	no
2	20	PINE (LOBLOLLY)	conifer	40	50%	no
Total Category 3 Significant Trees: 0						
Total Qty. of Mitigation Trees for Significant Tree Removal: 0						

Note: * All trees removed are regulated and removed for essential site improvements. No mitigation is required.

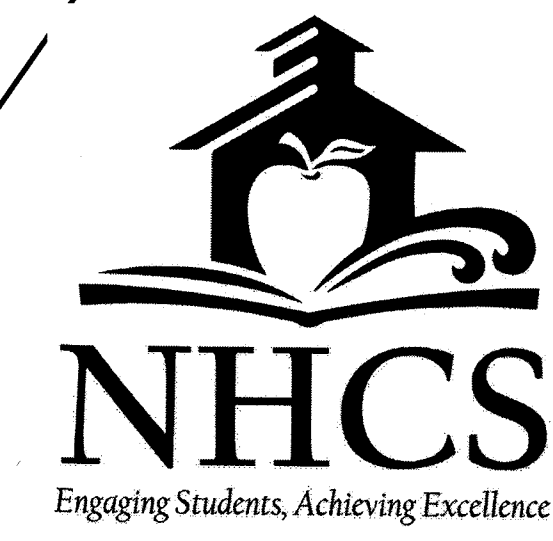
CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: 6/21/18
Signed: [Signature]

Approved Construction Plan
Name: [Name] Date: [Date]
Planning: [Signature] 6/20/18
Traffic: [Signature] 6-20-18
Fire: [Signature] 6-21-18

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

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

NDENR PWSS WATER PERMIT #: _____ GPD
WATER CAPACITY: _____ GPD
DWQ SEWER PERMIT #: _____ GPD
SEWER CAPACITY: _____ GPD
SEWER SHED # AND PLANT: _____
SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)



REVISIONS:

CLIENT INFORMATION:
BECKER MORGAN GROUP
3205 RANDALL PKWY., #211
WILMINGTON, NC 28403

PARAMOUNT ENGINEERING
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

DEMOLITION & TREE REMOVAL PLAN
ROLAND GRISE MIDDLE SCHOOL
4412 LAKE AVENUE
WILMINGTON, NORTH CAROLINA

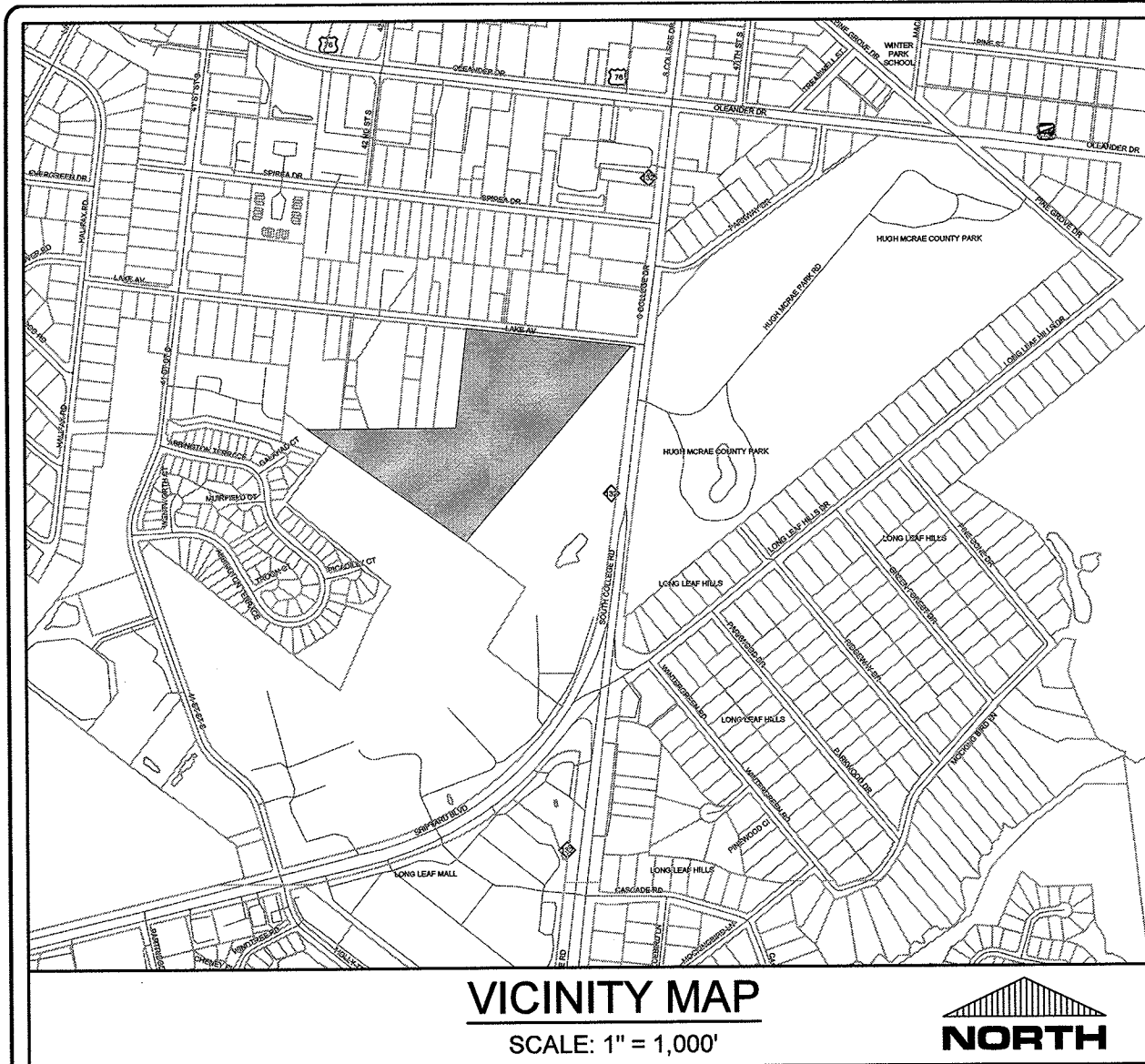
RELEASED FOR CONSTRUCTION

PROJECT STATUS:
CONCEPT LAYOUT: 06/20/18
PRELIMINARY LAYOUT: 06/20/18
RELEASED FOR CONSTRUCTION: 06/20/18

DRAWING INFORMATION:
DATE DESIGNED: 06/20/18
DATE CHECKED: 06/20/18
SCALE: 1" = 40'

SEAL:
NORTH CAROLINA PROFESSIONAL ENGINEER
ROBERT P. BALLAN
031591
06/20/18

C-2.0
PEI JOB#: 17215.PE



SITE DATA TABULATION

OWNER: NEW HANOVER COUNTY BOARD OF ED.
 PROJECT ADDRESS: 4412 LAKE AVENUE WILMINGTON, NC 28403
 TAX PARCEL IDENTIFICATION #: R08110-001-002-000 (28.01 AC)
 RECORDED DEED BOOK: BK 0563, PG 548331; BK 600, PG 532; BK 1559, PG 1069; BK 5351, PG 2909

TOTAL SITE AREA: 20.43 ACRES (889,713 SF)
 CURRENT ZONING: O&I-1 - OFFICE & INSTITUTIONAL DISTRICT 1
 CAMA LAND USE CLASSIFICATION: URBAN
 MAXIMUM ALLOWABLE BUILDING HEIGHT: 45'
 EXISTING BUILDING HEIGHT: BLDG. A=24', BLDG. B=24', BLDG. C=12', BLDG. D=12'
 EXISTING LAND USE: MIDDLE SCHOOL
 PROPOSED LAND USE: MIDDLE SCHOOL

SETBACK STANDARDS

	PROVIDED	REQUIRED
MINIMUM FRONT SETBACK	150.5 FT. (NORTH)	20 FT.
MINIMUM SIDE SETBACK	254.5 FT. (EAST)	10 FT.
MINIMUM SIDE SETBACK (ADJACENT TO RESIDENTIAL ZONING)	125.7 FT. (WEST)	20 FT.
MINIMUM REAR SETBACK	681.5 FT. (SOUTH)	20 FT.

SITE INFORMATION

	889,713 SF (20.43 AC)	15,000 SF
LOT AREA	889,713 SF (20.43 AC)	15,000 SF
LOT WIDTH	602.47'	80' MIN.
BLDG. LOT COVERAGE	11.6%	40% MAX.

BUILDING INFORMATION

EX. CONSTRUCTION TYPE: II-B, II-B, V-B, V-B, V-B, V-B
 NUMBER OF BUILDINGS: 4 EX., 8 MODULARS (5,250 SF TOTAL DEMOLISHED)

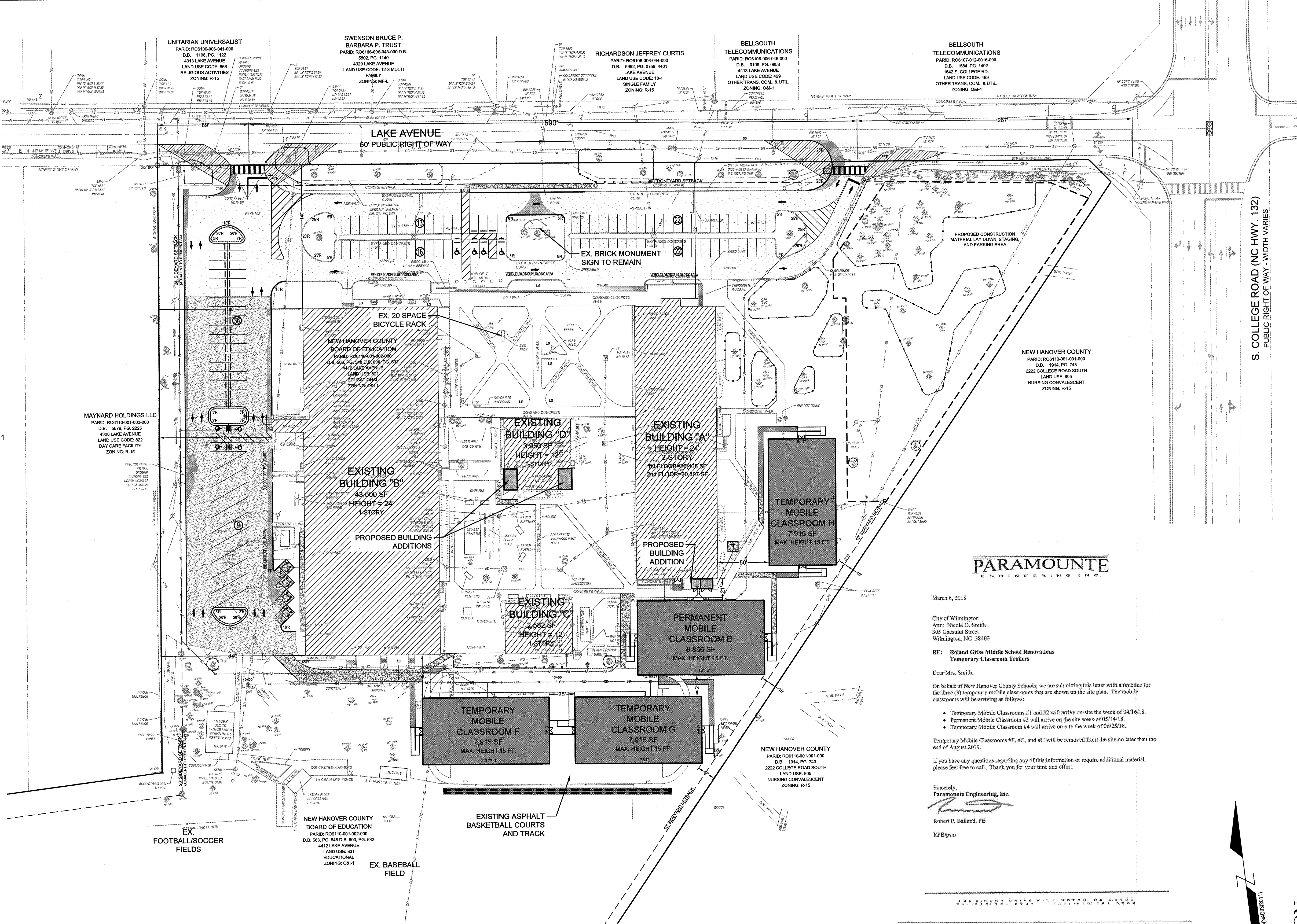
EXISTING BUILDING FOOTPRINT SF	PROPOSED BUILDING ADDITIONS
BUILDING A: 20,465 SF (2-STORY)	BUILDING A: 111 SF
BUILDING B: 43,500 SF (1-STORY)	BUILDING B: 0 SF
BUILDING C: 2,582 SF (1-STORY)	BUILDING C: 0 SF
BUILDING D: 3,950 SF (1-STORY)	BUILDING D: 364 SF
	TEMPORARY MODULARS (3): 23,745 SF
	PERMANENT MODULAR (1): 8,856 SF
	TOTAL: 33,076 SF

SITE PARKING

MINIMUM PARKING REQUIRED: (1 PER TEACHER AND STAFF PERSON, 80 STAFF MEMBERS)	80 SPACES
MAXIMUM PARKING ALLOWABLE:	120 SPACES
TOTAL PARKING PROVIDED:	117 SPACES
HANDICAP PARKING REQUIRED:	5 SPACES
HANDICAP PARKING PROVIDED:	8 SPACES
BICYCLE PARKING REQUIRED:	10 SPACES
BICYCLE PARKING PROVIDED:	20 SPACES (EXISTING)

IMPERVIOUS AREA:

EXISTING IMPERVIOUS AREA BUILDINGS	70,497 SF
SIDEWALK & DRIVEWAY	154,819 SF
TOTAL	225,316 SF (25.3%)
EXISTING IMPERVIOUS AREA TO BE DEMOLISHED	30,361 SF (3.41%)
PROPOSED IMPERVIOUS AREA PERMANENT	4,606 SF
SIDEWALK	3,098 SF
DRIVEWAY	8,856 SF
MOBILE UNIT	16,550 SF (1.86%)
TEMPORARY SIDEWALK	1,378 SF
TEMPORARY DRIVEWAY	23,745 SF
TEMPORARY MOBILE UNITS	25,123 SF (2.82%)



LEGEND:

- PROPOSED ASPHALT OVERLAY
- PROPOSED ASPHALT SEALING
- PROPOSED ASPHALT SECTION
- PROPOSED BUILDING
- PROPOSED CONCRETE
- PROPOSED CHAIN LINK FENCE
- EXISTING TREE LINE
- PROPOSED LIGHT POLE
- PROPOSED LANDSCAPE ISLAND
- PROPOSED TREE PROTECTION FENCE
- PARKING SPACE COUNT
- PROPOSED CONTRACTOR LAYDOWN AREA

APPROVED CONSTRUCTION PLAN

City of Wilmington, North Carolina
 Public Services • Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: 6/21/18
 Signed: [Signature]

Approved Construction Plan

Name	Date
Planning: Nicole D. Smith	6/20/18
Traffic: [Signature]	6-20-18
Fire: [Signature]	6-21-18

FOR EACH OPEN UTILITY CUT OF CITY STREETS, A \$325 PERMIT SHALL BE REQUIRED FROM THE CITY PRIOR TO OCCUPANCY AND/OR PROJECT ACCEPTANCE.

NCDENR PWSS WATER PERMIT #: _____
 WATER CAPACITY: _____ GPD
 DWQ SEWER PERMIT #: _____
 SEWER CAPACITY: _____ GPD
 SEWER SHED # AND PLANT: _____
 SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)

GRAPHIC SCALE
 0 25 50 100 200
 SCALE: 1"=50'

811
 Know what's below. Call before you dig.

REVISIONS:

CLIENT INFORMATION:
 BECKER MORGAN GROUP
 3205 RANDALL PKWY., #211
 WILMINGTON, NC 28403

PARAMOUNT ENGINEERING, INC.
 122 Cinema Drive
 Wilmington, North Carolina 28403
 (910) 791-6707 (O) (910) 791-6760 (F)
 NC License #: C-2846

OVERALL SITE PLAN
 ROLAND GRISE MIDDLE SCHOOL
 4412 LAKE AVENUE
 WILMINGTON, NORTH CAROLINA

PROJECT STATUS:
 FINAL DESIGN: 06/20/18
 PRELIMINARY LAYOUT: 06/20/18
 RELEASED FOR CONSTRUCTION: 06/20/18

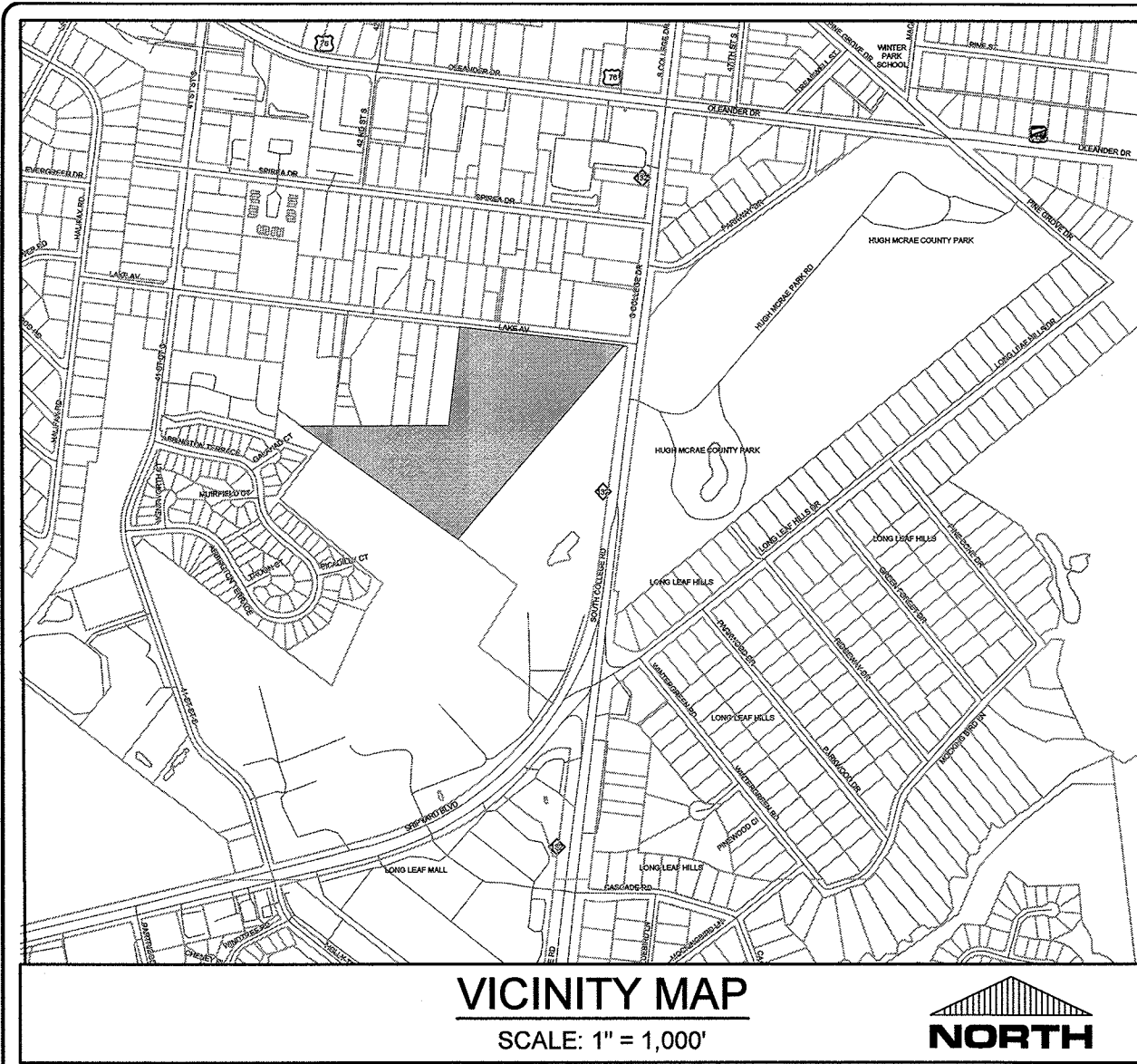
DRAWING INFORMATION:
 DATE: 06/20/18
 SCALE: 1"=50'
 DRAWN: RPB
 CHECKED: RPB

SEAL:
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 031591
 ROBERT P. BALLARD
 06/20/18

RELEASED FOR CONSTRUCTION

C-2.1
 PEI JOB#: 17215.PE





SITE DATA TABULATION

OWNER: NEW HANOVER COUNTY BOARD OF ED.
PROJECT ADDRESS: 4412 LAKE AVENUE
 WILMINGTON, NC 28403
 R06110-001-002-000 (28.01 AC)

TAX PARCEL IDENTIFICATION #:

RECORDED DEED BOOK: BK 0563, PG 548331
 BK 600, PG 532
 BK 1559, PG 1069
 BK 5351, PG 2909

TOTAL SITE AREA: 20.43 ACRES (889,713 SF)
CAMA LAND USE CLASSIFICATION: O&I-1 - OFFICE & INSTITUTIONAL DISTRICT 1 URBAN
MAXIMUM ALLOWABLE BUILDING HEIGHT: 45'
EXISTING BUILDING HEIGHT: BLDG. A=24', BLDG. B=24', BLDG. C=12', BLDG. D=12'
EXISTING LAND USE: MIDDLE SCHOOL
PROPOSED LAND USE: MIDDLE SCHOOL

SETBACK STANDARDS

	PROVIDED	REQUIRED
MINIMUM FRONT SETBACK	150.5 FT. (NORTH)	20 FT.
MINIMUM SIDE SETBACK	254.5 FT. (EAST)	10 FT.
MINIMUM SIDE SETBACK (ADJACENT TO RESIDENTIAL ZONING)	125.7 FT. (WEST)	20 FT.
MINIMUM REAR SETBACK	661.5 FT. (SOUTH)	20 FT.

SITE INFORMATION

LOT AREA	889,713 SF (20.43 AC)	15,000 SF
LOT WIDTH	602.47'	80' MIN.
BLDG. LOT COVERAGE	11.6%	40% MAX.

BUILDING INFORMATION

EX. CONSTRUCTION TYPE:

BUILDING A	III-B
BUILDING B	II-B
BUILDING C	V-B
BUILDING D	V-B

NUMBER OF BUILDINGS: 4 EX., 6 MODULARS (5,250 SF TOTAL DEMOLISHED)

EXISTING BUILDING FOOTPRINT SF

BUILDING A	20,465 SF (2-STORY)
BUILDING B	43,500 SF (1-STORY)
BUILDING C	2,582 SF (1-STORY)
BUILDING D	3,950 SF (1-STORY)

PROPOSED BUILDING ADDITIONS

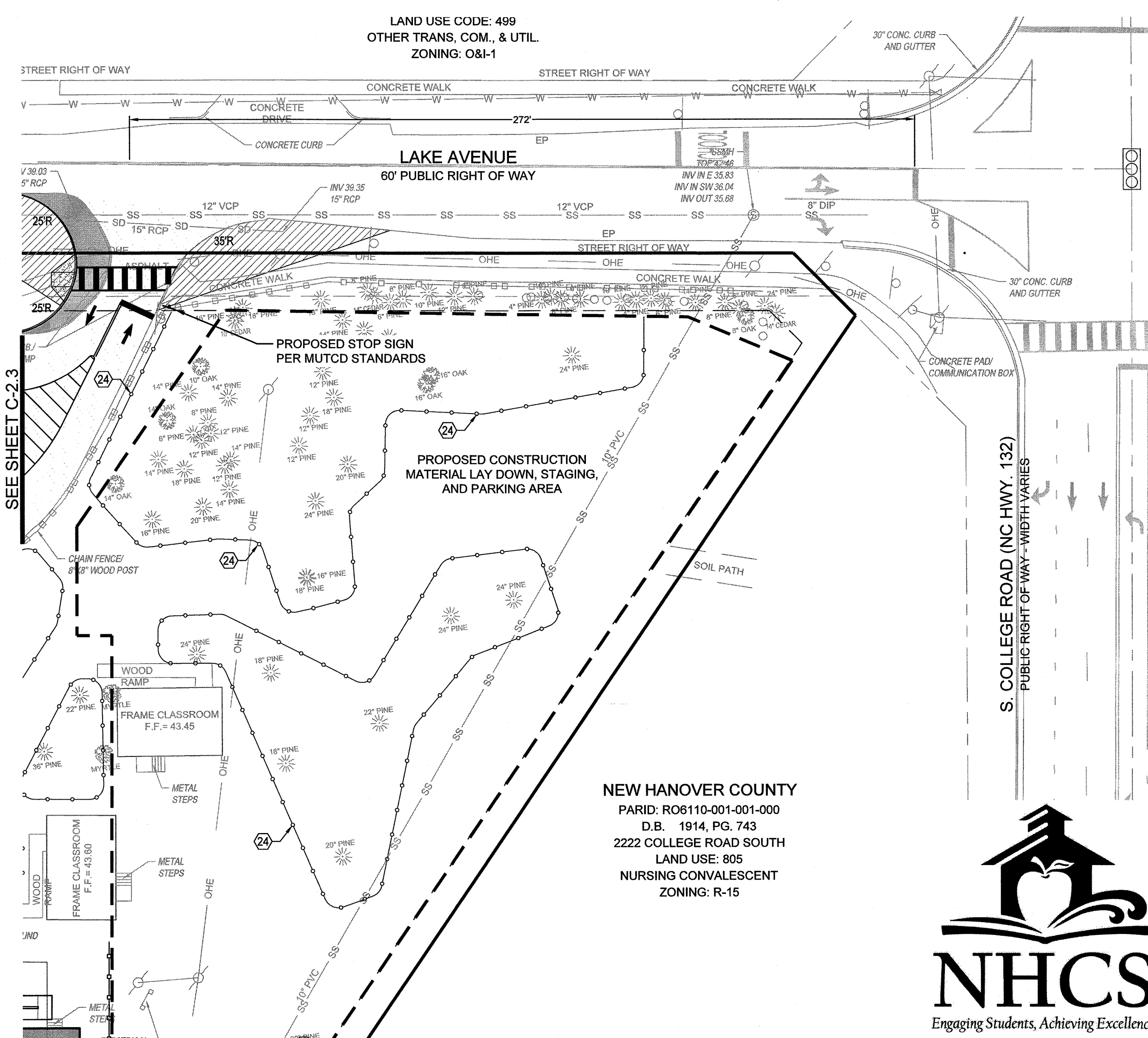
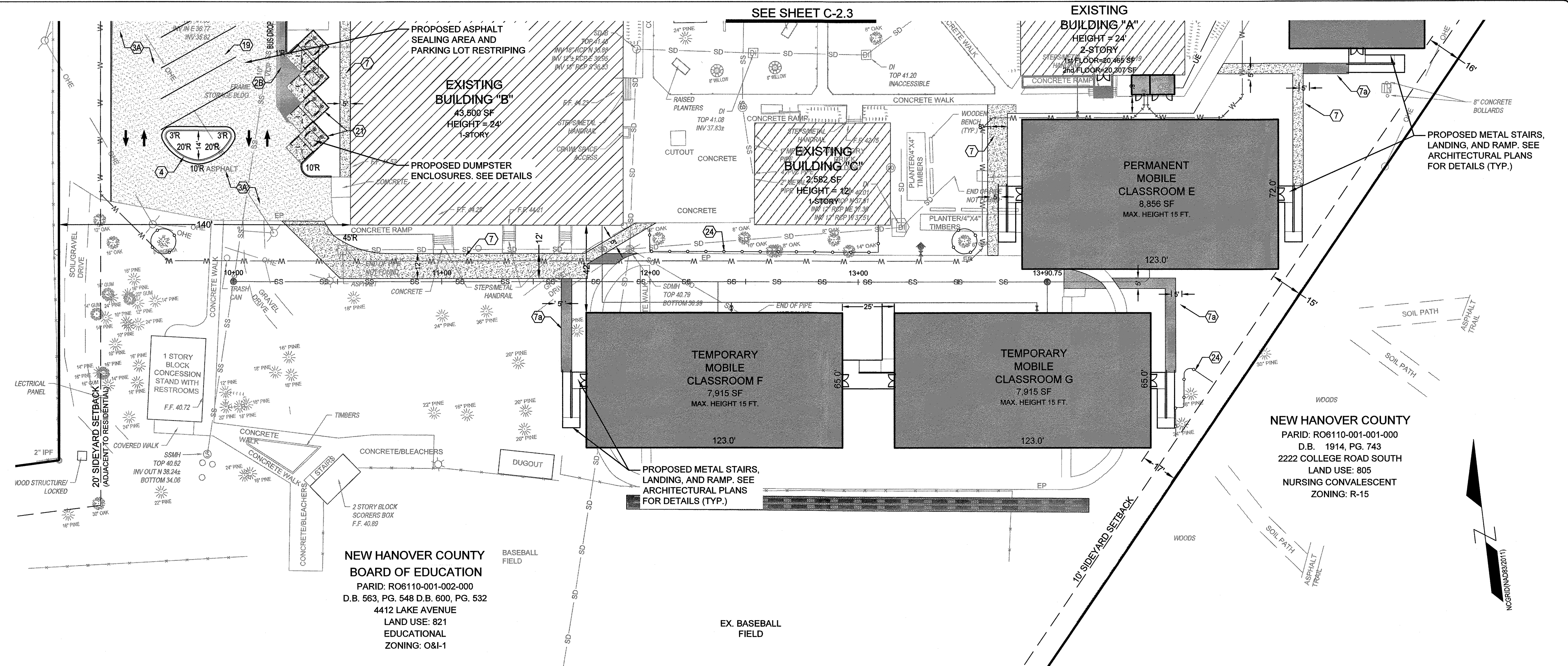
BUILDING A	111 SF
BUILDING B	0 SF
BUILDING C	0 SF
BUILDING D	364 SF
TEMPORARY MODULARS (3)	23,745 SF
PERMANENT MODULAR (1)	8,856 SF
TOTAL:	33,076 SF

SITE PARKING

MINIMUM PARKING REQUIRED: (1 PER TEACHER AND STAFF PERSON, 80 STAFF MEMBERS)	80 SPACES
MAXIMUM PARKING ALLOWABLE:	120 SPACES
TOTAL PARKING PROVIDED:	117 SPACES
HANDICAP PARKING REQUIRED:	5 SPACES
HANDICAP PARKING PROVIDED:	8 SPACES
BICYCLE PARKING REQUIRED:	10 SPACES
BICYCLE PARKING PROVIDED:	20 SPACES (EXISTING)

IMPERVIOUS AREA:

EXISTING IMPERVIOUS AREA	70,497 SF
BUILDINGS	154,819 SF
SIDEWALK & DRIVEWAY	225,316 SF (25.3%)
EXISTING IMPERVIOUS AREA TO BE DEMOLISHED	30,361 SF (3.41%)
PROPOSED IMPERVIOUS AREA	
PERMANENT SIDEWALK	4,606 SF
DRIVEWAY	3,088 SF
MOBILE UNIT	8,856 SF
	16,550 SF (1.86%)
TEMPORARY SIDEWALK	1,378 SF
MOBILE UNITS	23,745 SF
	25,123 SF (2.82%)



KEY NOTES:

- CONCRETE PAVING: REFER TO DETAIL C-5.0
- LIGHT DUTY ASPHALT PAVING: REFER TO DETAIL C-5.0
- PERVIOUS CONCRETE: REFER TO DETAIL C-5.0
- DETECTABLE WARNING MAT: REFER TO DETAIL C-5.0
- HANDICAP PARKING SYMBOL: REFER TO DETAIL C-5.0
- HANDICAP ACCESS UNLOADING ZONE: SLOPE 2% MAX. EACH WAY (ADA COMPLIANT) AND STRIPE AS SHOWN.
- DESIGNATED ACCESSIBLE ROUTE: PROVIDE STRIPING AND SLOPE 5% MAXIMUM IN DIRECTION OF TRAVEL WITH 2% MAXIMUM CROSS SLOPE.
- CONCRETE BUMPER BLOCK: 8" w x 4" h x 6'-0" LONG CONCRETE. ANCHOR TO PAVING WITH (2) 1"-6" LONG #4 REBAR. REFER TO DETAIL C-5.0
- PARKING LOT SITE LIGHTING: REFER TO C-2.4 FOR COORDINATE PLAN AND STRUCTURAL AND ELECTRICAL FOR TYP. DETAILS
- EXPOSED FACE CONCRETE SIDEWALK TO ASPHALT DETAIL: SEE DETAIL C-5.0
- STEEL BOLLARD: REFER TO ARCHITECTURAL DRAWINGS
- HANDICAP PARKING SIGN: REFER TO DETAIL C-5.0
- PERVIOUS CONCRETE: REFER TO DETAIL C-5.0
- HANDICAP PARKING SYMBOL: REFER TO DETAIL C-5.0
- HANDICAP ACCESS UNLOADING ZONE: SLOPE 2% MAX. EACH WAY (ADA COMPLIANT) AND STRIPE AS SHOWN.
- DESIGNATED ACCESSIBLE ROUTE: PROVIDE STRIPING AND SLOPE 5% MAXIMUM IN DIRECTION OF TRAVEL WITH 2% MAXIMUM CROSS SLOPE.
- CONCRETE BUMPER BLOCK: 8" w x 4" h x 6'-0" LONG CONCRETE. ANCHOR TO PAVING WITH (2) 1"-6" LONG #4 REBAR. REFER TO DETAIL C-5.0
- PARKING LOT SITE LIGHTING: REFER TO C-2.4 FOR COORDINATE PLAN AND STRUCTURAL AND ELECTRICAL FOR TYP. DETAILS
- BICYCLE RACK (5 BIKE MIN. PER RACK): SEE ARCHITECTURAL PLANS
- STRIPING: PROVIDE 4" WIDE PARKING LOT STRIPING AS SHOWN. USE HIGHWAY MARKING PAINT - WHITE (2 COATS).
- EMERGENCY VEHICLE LANE MARKING: NOT APPLICABLE
- PROPOSED DUMPSTERS & ENCLOSURE: REFER TO DETAILS C-5.0 & C-5.1
- MAN GATE: SEE ARCHITECTURAL DRAWINGS FOR DETAILS
- ORNAMENTAL FENCING: REFER TO DETAIL C-5.0
- TREE PROTECTION FENCING: SEE DETAIL C-2.3
- PYLON SIGN: SEE CIVIL COORDINATE PLAN C-2.4, A1.2, & STRUCTURAL DRAWINGS
- CONCRETE DRIVE APRON (COMMERCIAL): SEE DETAIL C-5.2

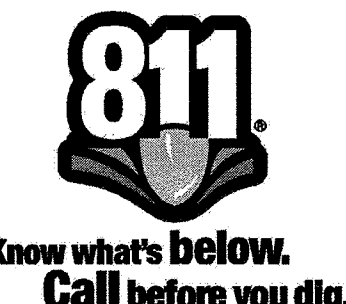
LEGEND:

[Pattern]	PROPOSED ASPHALT OVERLAY
[Pattern]	PROPOSED ASPHALT SEALING
[Pattern]	PROPOSED ASPHALT SECTION
[Pattern]	PROPOSED BUILDING
[Pattern]	PROPOSED CONCRETE
[Pattern]	PROPOSED CHAIN LINK FENCE
[Pattern]	EXISTING TREE LINE
[Pattern]	PROPOSED LIGHT POLE
[Pattern]	PROPOSED LANDSCAPE ISLAND
[Pattern]	PROPOSED TREE PROTECTION FENCE
[Pattern]	PARKING SPACE COUNT
[Pattern]	PROPOSED CONTRACTOR LAYDOWN AREA

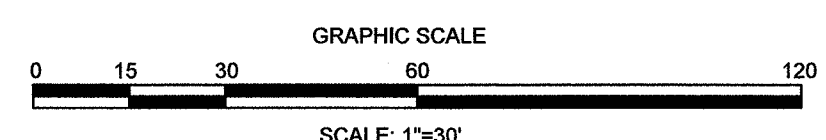
CITY OF WILMINGTON
 NORTH CAROLINA
 Public Services • Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: 6/21/18 Permit #: 2018024
 Signed: [Signature]

Approved Construction Plan
 Name: Nicole D. Smith Date: 6/20/18
 Planning: [Signature] 6-20-18
 Traffic: [Signature] 6-20-18
 Fire: [Signature] 6-20-18

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



NC DENR PWSS WATER PERMIT #:	
WATER CAPACITY:	_____ GPD
DWQ SEWER PERMIT #:	
SEWER CAPACITY:	_____ GPD
SEWER SHED # AND PLANT:	
SEWER TO FLOW THROUGH NEI:	YES or NO (CIRCLE ONE)



REVISIONS:

NO.	DESCRIPTION

CLIENT INFORMATION:
BECKER MORGAN GROUP
 3205 RANDALL PKWY., #211
 WILMINGTON, NC 28403

PARAMOUNT ENGINEERING
 122 Cinema Drive
 Wilmington, North Carolina 28403
 (910) 791-6707 (O) (910) 791-6760 (F)
 NC License #: C-2846

SITE PLAN
 ROLAND GRISE MIDDLE SCHOOL
 4412 LAKE AVENUE
 WILMINGTON, NORTH CAROLINA

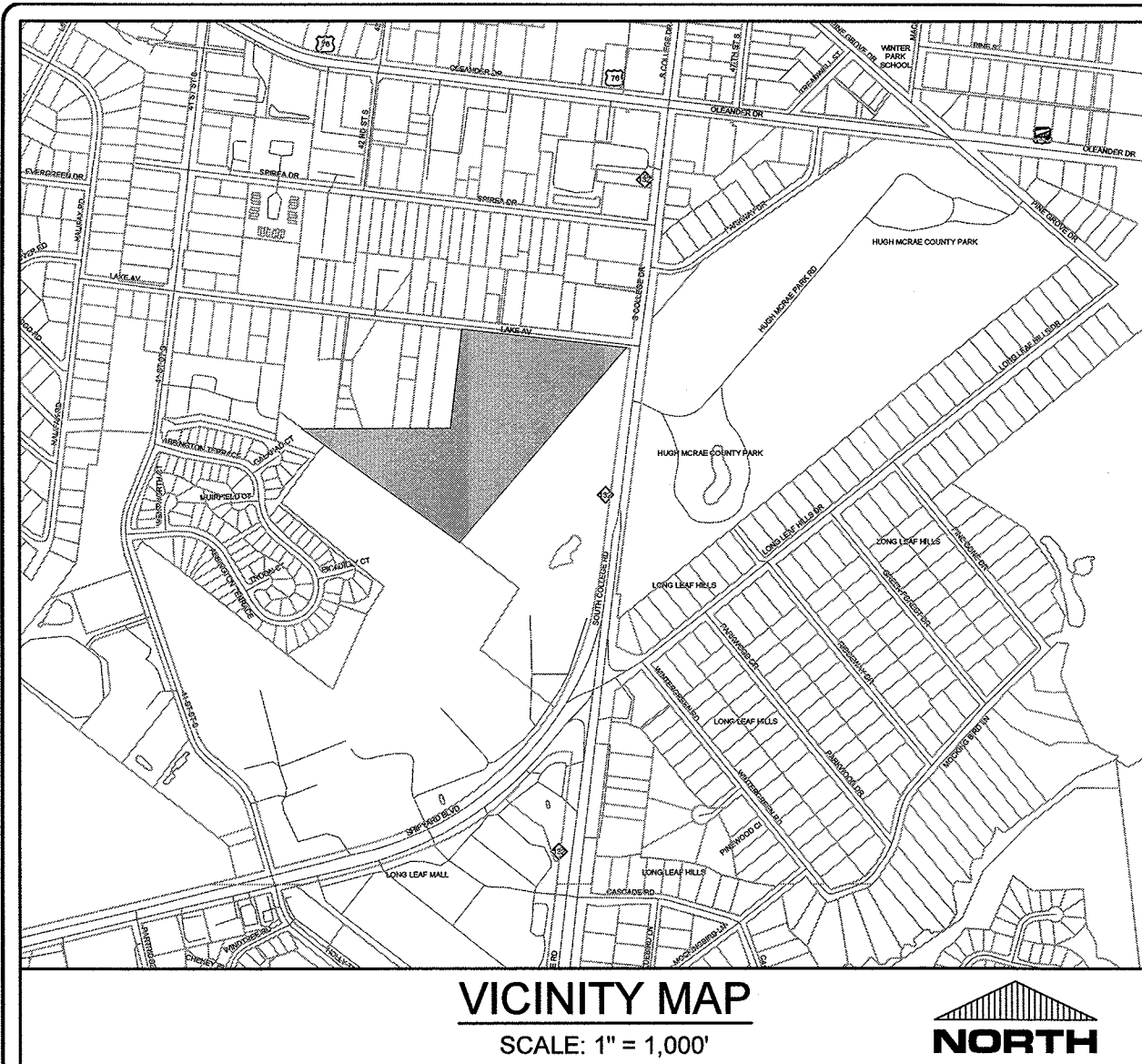
RELEASED FOR CONSTRUCTION

PROJECT STATUS:
 CONCEPTUAL LAYOUT: _____
 PRELIMINARY LAYOUT: _____
 FINAL DESIGN: _____
 RELEASED FOR CONST.: _____

DRAWING INFORMATION:
 DATE: 6/20/18
 DESIGNED: [Signature]
 DRAWN: [Signature]
 CHECKED: [Signature]

SEAL:
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 031591
 ENGINEER
 ROBERT P. BALLARD
 06/20/18

C-2.2
 PEI JOB#: 17215.PE



VICINITY MAP
SCALE: 1" = 1,000'

SITE DATA TABULATION

OWNER: NEW HANOVER COUNTY BOARD OF ED.
4412 LAKE AVENUE
WILMINGTON, NC 28403

PROJECT ADDRESS: 4412 LAKE AVENUE
WILMINGTON, NC 28403

TAX PARCEL IDENTIFICATION #: R06110-001-002-000 (28.01 AC)

RECORDED DEED BOOK: BK 0563, PG 548331
BK 600, PG 532
BK 1559, PG 1069
BK 5351, PG 2909

TOTAL SITE AREA: 20.43 ACRES (889,713 SF)

CAMA LAND USE CLASSIFICATION: O&I-1 - OFFICE & INSTITUTIONAL DISTRICT 1

MAXIMUM ALLOWABLE BUILDING HEIGHT: 45'

EXISTING BUILDING HEIGHT: BLDG. A=24', BLDG. B=24', BLDG. C=12', BLDG. D=12'

EXISTING LAND USE: MIDDLE SCHOOL

PROPOSED LAND USE: MIDDLE SCHOOL

SETBACK STANDARDS

	PROVIDED	REQUIRED
MINIMUM FRONT SETBACK	150.5 FT. (NORTH)	20 FT.
MINIMUM SIDE SETBACK	254.5 FT. (EAST)	10 FT.
MINIMUM SIDE SETBACK (ADJACENT TO RESIDENTIAL ZONING)	125.7 FT. (WEST)	20 FT.
MINIMUM REAR SETBACK	661.5 FT. (SOUTH)	20 FT.

SITE INFORMATION

LOT AREA	889,713 SF (20.43 AC)	15,000 SF
LOT WIDTH	602.47'	80' MIN.
BLDG. LOT COVERAGE	11.6%	40% MAX.

BUILDING INFORMATION

EX. CONSTRUCTION TYPE:	
BUILDING A	III-B
BUILDING B	II-B
BUILDING C	V-B
BUILDING D	V-B
NUMBER OF BUILDINGS	4 EX., 6 MODULARS (5,250 SF TOTAL DEMOLISHED)

EXISTING BUILDING FOOTPRINT SF

BUILDING A	20,465 SF (2-STORY)
BUILDING B	43,500 SF (1-STORY)
BUILDING C	2,582 SF (1-STORY)
BUILDING D	3,950 SF (1-STORY)

PROPOSED BUILDING ADDITIONS

BUILDING A	111 SF
BUILDING B	0 SF
BUILDING C	0 SF
BUILDING D	364 SF
TEMPORARY MODULARS (3)	23,745 SF
PERMANENT MODULAR (1)	8,856 SF
TOTAL:	33,076 SF

SITE PARKING

MINIMUM PARKING REQUIRED:
(1 PER TEACHER AND STAFF PERSON,
80 STAFF MEMBERS)

MAXIMUM PARKING ALLOWABLE:

120 SPACES

TOTAL PARKING PROVIDED:

117 SPACES

HANDICAP PARKING REQUIRED:

5 SPACES

HANDICAP PARKING PROVIDED:

8 SPACES

BICYCLE PARKING REQUIRED:

10 SPACES

BICYCLE PARKING PROVIDED:

20 SPACES (EXISTING)

IMPERVIOUS AREA:

EXISTING IMPERVIOUS AREA

BUILDINGS

70,497 SF

SIDEWALK & DRIVEWAY

154,819 SF

225,316 SF (25.3%)

EXISTING IMPERVIOUS AREA

TO BE DEMOLISHED

30,361 SF (3.41%)

PROPOSED IMPERVIOUS AREA

PERMANENT

SIDEWALK

4,606 SF

DRIVEWAY

3,088 SF

MOBILE UNIT

8,856 SF

16,550 SF (1.86%)

TEMPORARY

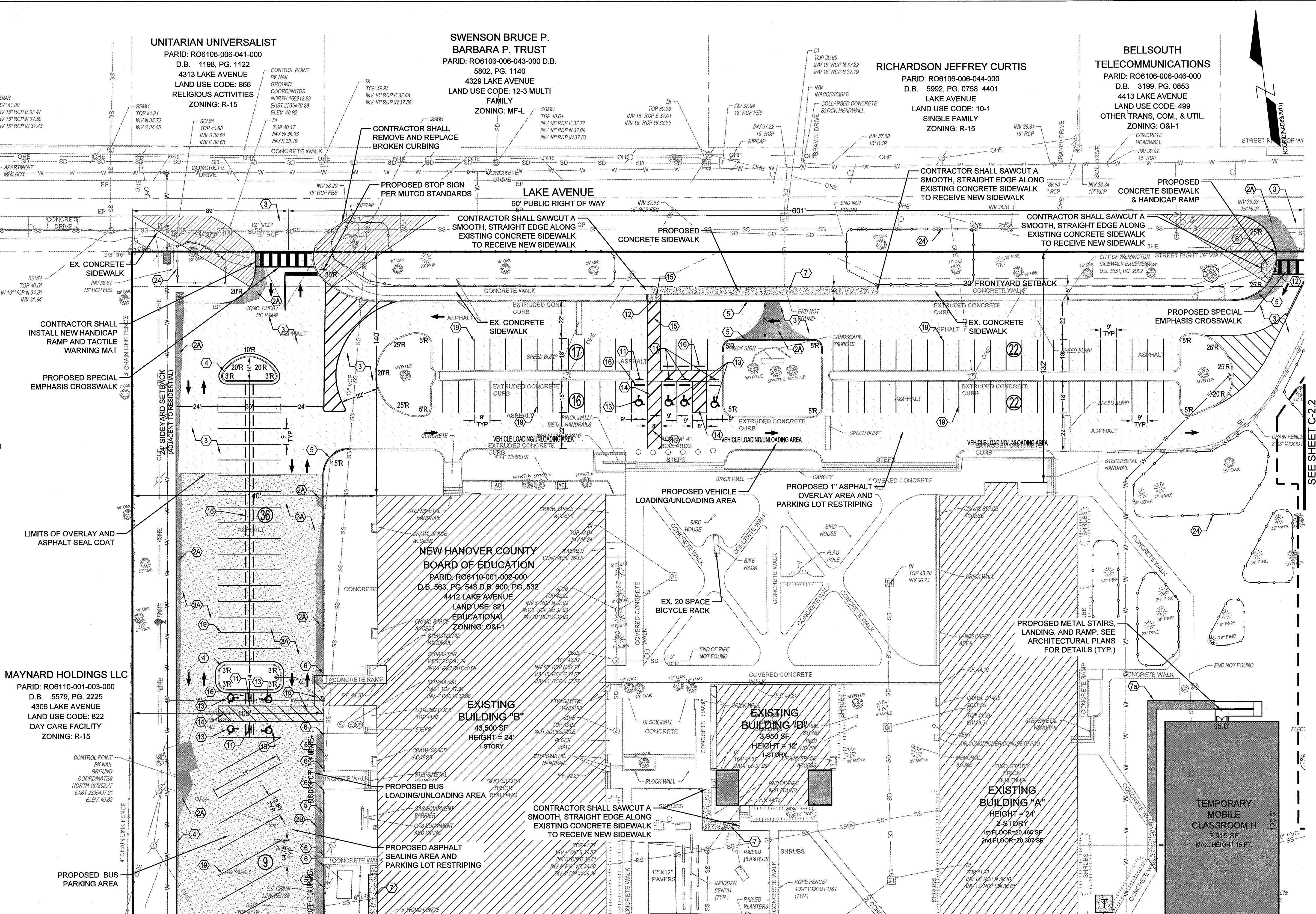
SIDEWALK

1,378 SF

MOBILE UNITS

23,745 SF

25,123 SF (2.82%)

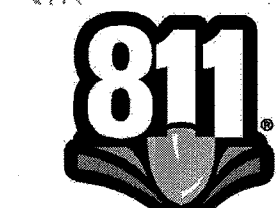


KEY NOTES:

- 1 CONCRETE PAVING: REFER TO DETAIL C-5.0
- 2A LIGHT DUTY ASPHALT PAVING: REFER TO DETAIL C-5.0
- 2B PERVIOUS CONCRETE: REFER TO DETAIL C-5.0
- 3 ASPHALT OVERLAY AREA: REFER TO DETAIL C-5.0
- 3A ASPHALT SEAL COAT: REFER TO TECHNICAL SPECIFICATIONS
- 4 STANDARD 24" CURB & GUTTER: REFER TO DETAIL C-5.0
- 5 EXTRUDED CURB (NCDOT 8"x12" CURB): SEE DETAIL C-5.0
- 6 TRANSITION CURB DETAIL: SEE DETAIL C-5.0
- 7 CONCRETE SIDEWALK: REFER TO DETAIL C-5.0
- 7A ASPHALT SIDEWALK: REFER TO DETAIL C-5.0
- 8 CONCRETE DOOR LANDING: SEE ARCHITECTURAL
- 9 EXPOSED FACE CONCRETE SIDEWALK TO ASPHALT DETAIL: SEE DETAIL C-5.0
- 10 STEEL BOLLARD: REFER TO ARCHITECTURAL DRAWINGS
- 11 HANDICAP PARKING SIGN: REFER TO DETAIL C-5.0
- 12 DETECTABLE WARNING MAT: REFER TO DETAIL C-5.0
- 13 HANDICAP PARKING SYMBOL: REFER TO DETAIL C-5.0
- 14 HANDICAP ACCESS UNLOADING ZONE: SLOPE 2% MAX. EACH WAY (ADA COMPLIANT) AND STRIPE AS SHOWN.
- 15 DESIGNATED ACCESSIBLE ROUTE: PROVIDE STRIPING AND SLOPE 5% MAXIMUM IN DIRECTION OF TRAVEL WITH 2% MAXIMUM CROSS SLOPE.
- 16 CONCRETE BUMPER BLOCK: 8'w x 4'h x 6'-0" LONG CONCRETE. ANCHOR TO PAVING WITH (2) 1"-6" LONG #4 REBAR. REFER TO DETAIL C-5.0
- 17 PARKING LOT SITE LIGHTING: REFER TO C-2.4 FOR COORDINATE PLAN AND STRUCTURAL AND ELECTRICAL FOR TYP. DETAILS
- 18 BICYCLE RACK (5 BIKE MIN. PER RACK): SEE ARCHITECTURAL PLANS
- 19 STRIPING: PROVIDE 4" WIDE PARKING LOT STRIPING AS SHOWN. USE HIGHWAY MARKING PAINT - WHITE (2 COATS).
- 20 EMERGENCY VEHICLE LANE MARKING: NOT APPLICABLE
- 21 PROPOSED DUMPSTERS & ENCLOSURE: REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS
- 22 MAN GATE: SEE ARCHITECTURAL DRAWINGS FOR DETAILS
- 23 ORNAMENTAL FENCING: REFER TO DETAIL C-5.0
- 24 TREE PROTECTION FENCING: SEE DETAIL C-2.3
- 25 PYLON SIGN: SEE CIVIL COORDINATE PLAN C-2.4, A1.2, & STRUCTURAL DRAWINGS

LEGEND:

- PROPOSED ASPHALT OVERLAY
- PROPOSED ASPHALT SEALING
- PROPOSED ASPHALT SECTION
- PROPOSED BUILDING
- PROPOSED CONCRETE
- PROPOSED CHAIN LINK FENCE
- EXISTING TREE LINE
- PROPOSED LIGHT POLE
- PROPOSED LANDSCAPE ISLAND
- PROPOSED TREE PROTECTION FENCE
- PARKING SPACE COUNT
- PROPOSED CONTRACTOR LAYDOWN AREA



For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

APPROVED STORMWATER MANAGEMENT PLAN

Date: 6/21/19 Permit # 2019024

Signed: *[Signature]*

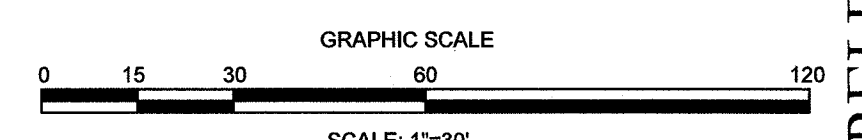
Approved Construction Plan

Name: *Nicole Smith* Date: *4-20-18*

Traffic: *W. Edgar* Date: *6-20-18*

Fire: *W. Edgar* Date: *6-21-18*

NC DENR PWSS WATER PERMIT #:	
WATER CAPACITY:	GPD
DWQ SEWER PERMIT #:	
SEWER CAPACITY:	GPD
SEWER SHED # AND PLANT:	
SEWER TO FLOW THROUGH NEI:	YES or NO (CIRCLE ONE)



REVISIONS:

CLIENT INFORMATION: BECKER MORGAN GROUP
3205 RANDALL PKWY., #211
WILMINGTON, NC 28403

PARAMOUNT ENGINEERING
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-3846

SITE PLAN

ROLAND GRISE MIDDLE SCHOOL
4412 LAKE AVENUE
WILMINGTON, NORTH CAROLINA

PROJECT STATUS: CONCEPT LAYOUT, PRELIMINARY LAYOUT, FINAL DESIGN, RELEASED FOR CONST.

DRAWING INFORMATION: DATE: 06/20/18, DRAWN: RFB, CHECKED: RFB

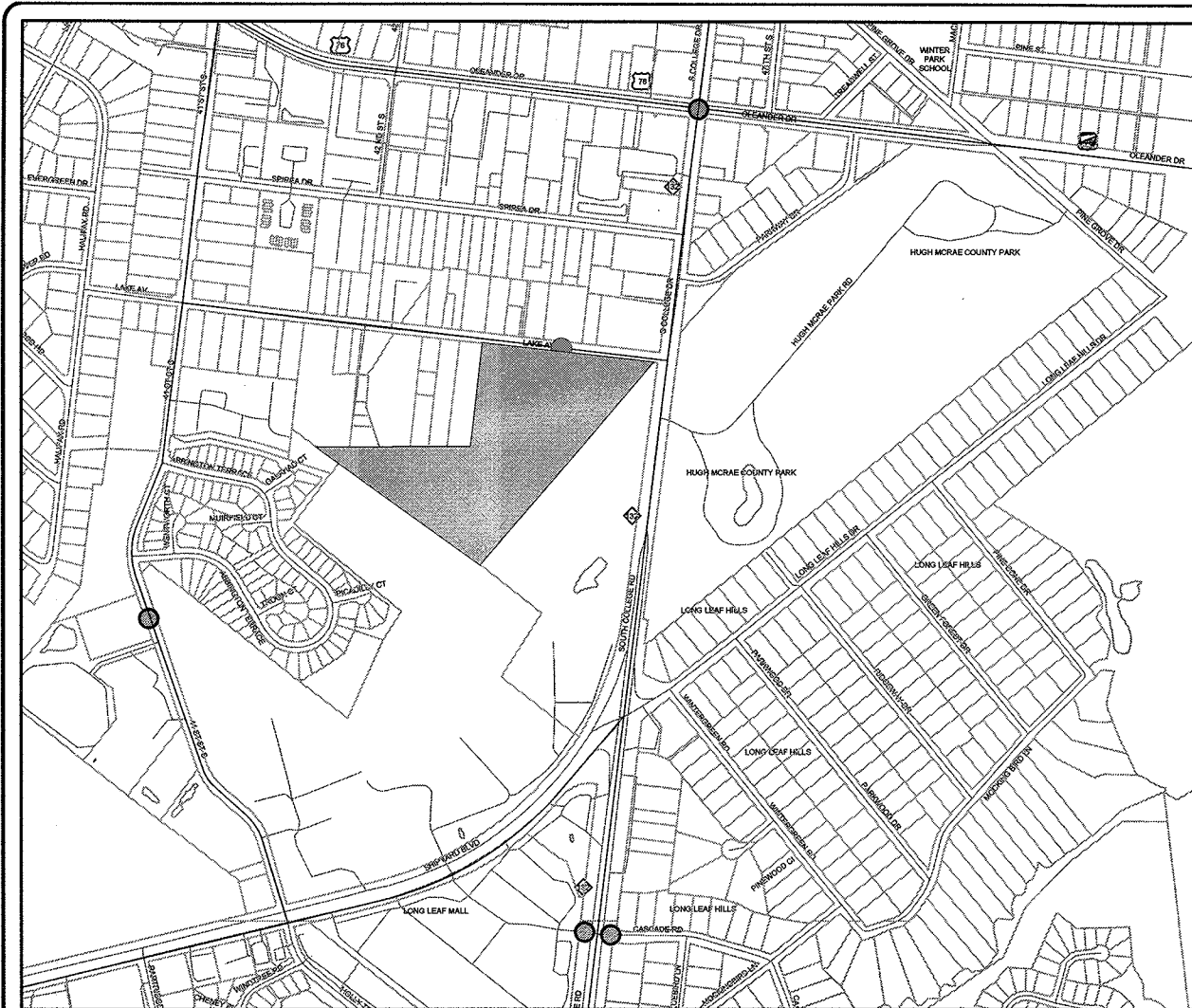
SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER, ROBERT F. BALLA, 031591, 06/20/18

RELEASED FOR CONSTRUCTION

NHCS
Engaging Students, Achieving Excellence

C-2.3

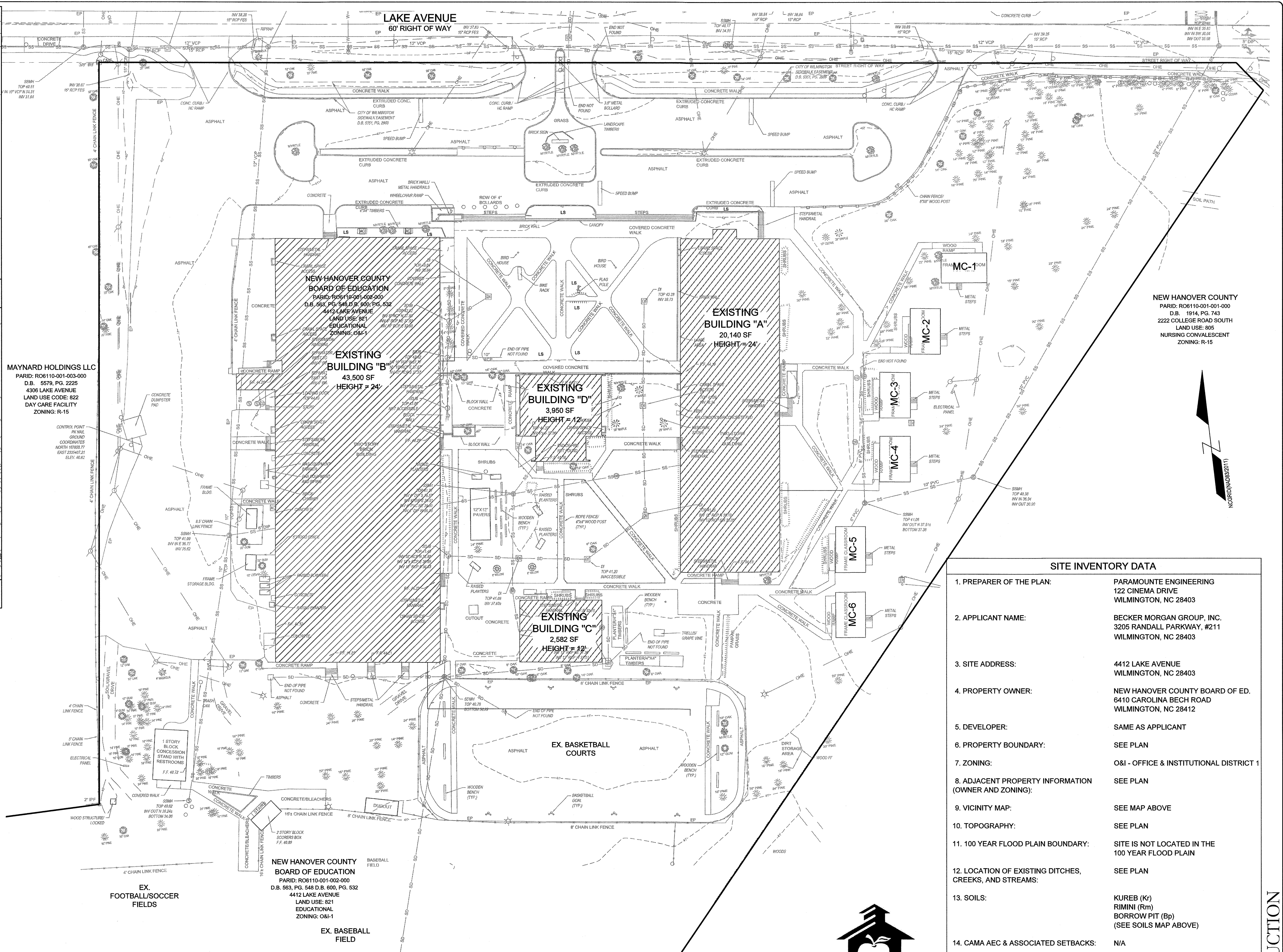
PEI JOB#: 17215.PE



VICINITY MAP
SCALE: 1" = 1,000'



SOILS MAP
SCALE: 1" = 500'



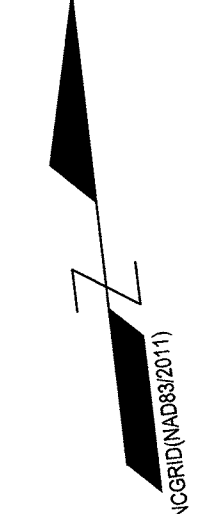
MAYNARD HOLDINGS LLC
PARID: R06110-001-003-000
D.B. 5579, PGS. 2225
4306 LAKE AVENUE
LAND USE CODE: 822
DAY CARE FACILITY
ZONING: R-15

NEW HANOVER COUNTY
BOARD OF EDUCATION
PARID: R06110-001-002-000
D.B. 565, PGS. 545 D.B. 600, PGS. 532
4412 LAKE AVENUE
LAND USE: 821
EDUCATIONAL
ZONING: O&I-1

EX. FOOTBALL/SOCCER FIELDS

EX. BASEBALL FIELD

NEW HANOVER COUNTY
PARID: R06110-001-001-000
D.B. 1914, PG. 743
2222 COLLEGE ROAD SOUTH
LAND USE: 805
NURSING CONVALESCENT
ZONING: R-15



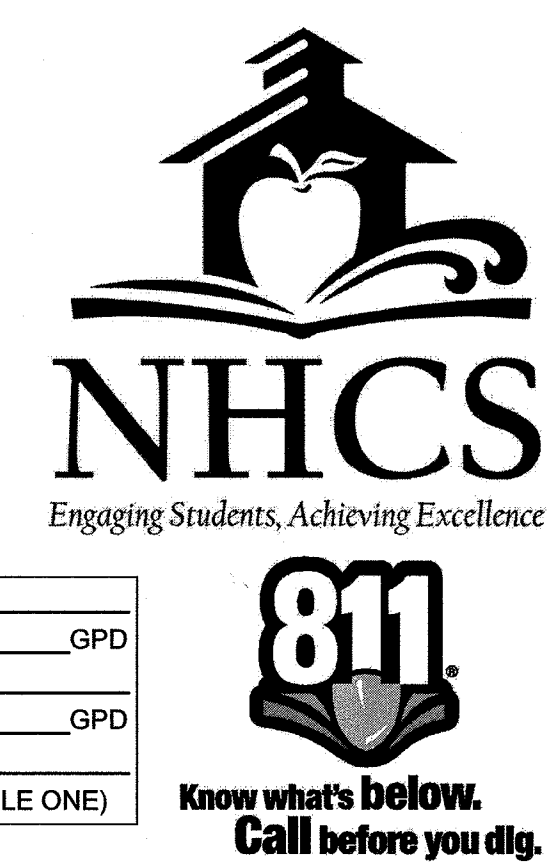
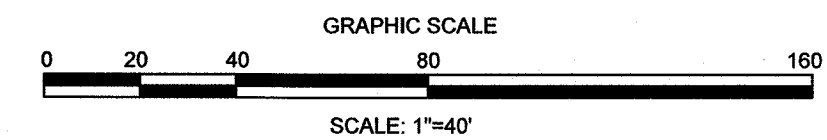
CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: 6/21/18 Permit # 2018024
Signed: *[Signature]*

Approved Construction Plan

Name	Date
Planning: Nicole Demeth	6/20/18
Traffic: W. Edwards	6-20-18
Fire: [Signature]	6-21-18

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

NC DENR PWSS WATER PERMIT # _____ GPD
WATER CAPACITY: _____ GPD
DWQ SEWER PERMIT # _____
SEWER CAPACITY: _____ GPD
SEWER SHED # AND PLANT: _____
SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)



SITE INVENTORY DATA

1. PREPARER OF THE PLAN:	PARAMOUNT ENGINEERING 122 CINEMA DRIVE WILMINGTON, NC 28403
2. APPLICANT NAME:	BECKER MORGAN GROUP, INC. 3205 RANDALL PARKWAY, #211 WILMINGTON, NC 28403
3. SITE ADDRESS:	4412 LAKE AVENUE WILMINGTON, NC 28403
4. PROPERTY OWNER:	NEW HANOVER COUNTY BOARD OF ED. 6410 CAROLINA BECH ROAD WILMINGTON, NC 28412
5. DEVELOPER:	SAME AS APPLICANT
6. PROPERTY BOUNDARY:	SEE PLAN
7. ZONING:	O&I - OFFICE & INSTITUTIONAL DISTRICT 1
8. ADJACENT PROPERTY INFORMATION (OWNER AND ZONING):	SEE PLAN
9. VICINITY MAP:	SEE MAP ABOVE
10. TOPOGRAPHY:	SEE PLAN
11. 100 YEAR FLOOD PLAIN BOUNDARY:	SITE IS NOT LOCATED IN THE 100 YEAR FLOOD PLAIN
12. LOCATION OF EXISTING DITCHES, CREEKS, AND STREAMS:	SEE PLAN
13. SOILS:	KUREB (K) RIMINI (Rm) BORROW PIT (Bp) (SEE SOILS MAP ABOVE)
14. CAMA AEC & ASSOCIATED SETBACKS:	N/A
15. CAMA LAND CLASSIFICATION:	URBAN
16. CONSERVATION RESOURCES:	N/A
17. LOCAL, STATE, OR FEDERAL HISTORIC OR ARCHAEOLOGICAL SITE:	N/A
18. LOCATION OF CEMETERIES, BURIAL SITES, OR BURIAL GROUNDS:	N/A
19. SQUARE FOOTAGE OF FORESTED AREA, HABITAT, AND DOMINANT SPECIES:	N/A
20. SECTION 404 WETLANDS AND SECTION 10 WATERS:	N/A, VERIFIED BY LAND MANAGEMENT GROUP
21. PROTECTED SPECIES OR HABITAT:	N/A
22. THOROUGHFARES, BIKE ROUTES, SIDEWALKS, TRANSIT FACILITIES (EXISTING OR PROPOSED):	SEE PLAN & VICINITY MAP

RELEASED FOR CONSTRUCTION

REVISIONS

NO.	DATE	DESCRIPTION

CLIENT INFORMATION:
BECKER MORGAN GROUP
3205 RANDALL PKWY., #211
WILMINGTON, NC 28403

PARAMOUNT ENGINEERING
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

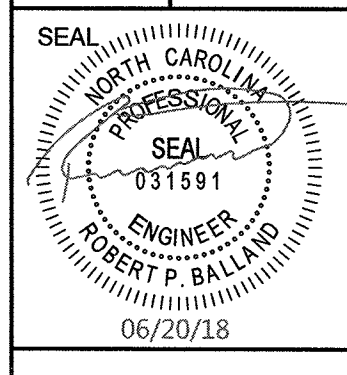
SITE INVENTORY PLAN
ROLAND GRISE MIDDLE SCHOOL
4412 LAKE AVENUE
WILMINGTON, NORTH CAROLINA

PROJECT STATUS

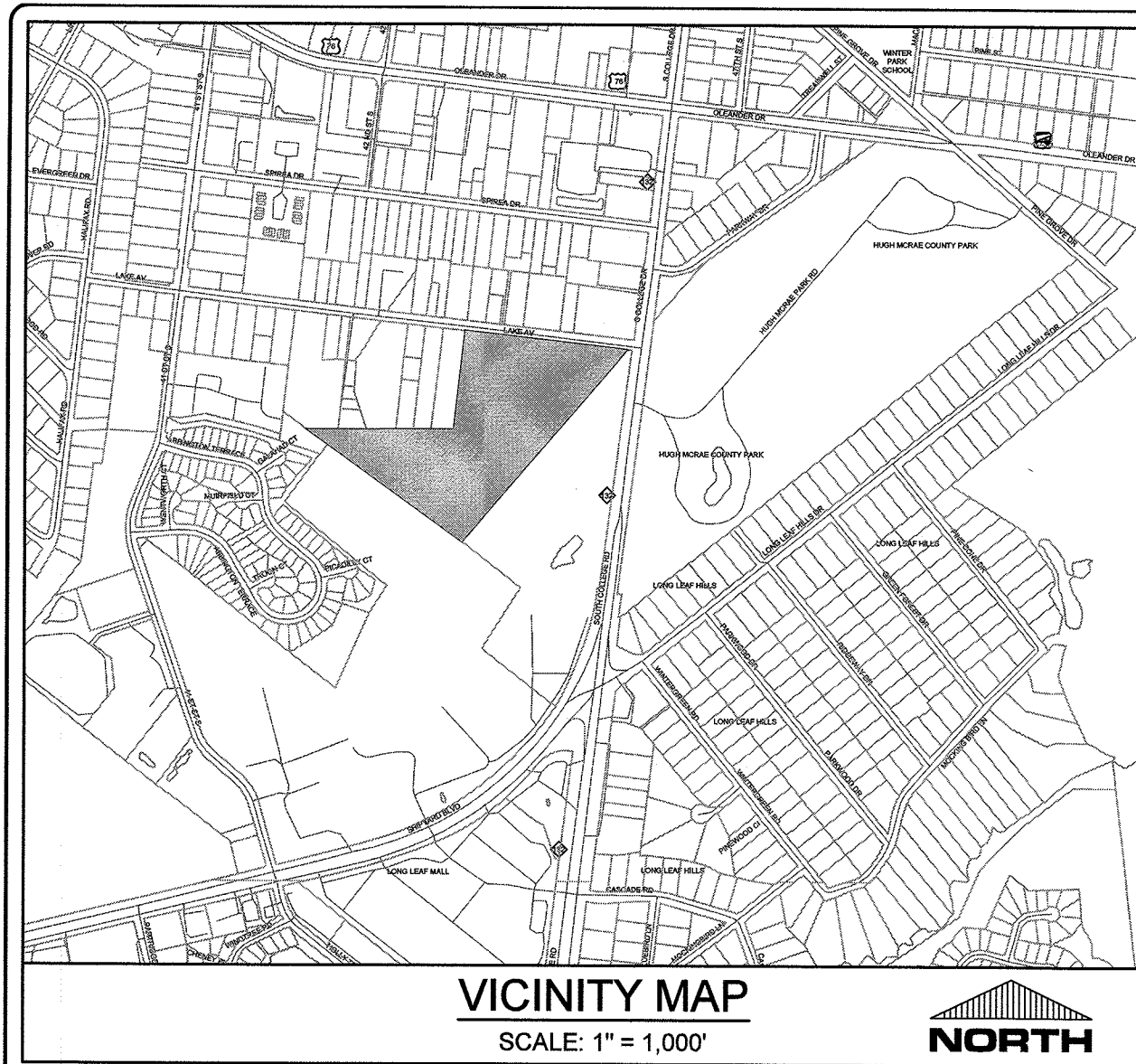
CONCEPTUAL LAYOUT	06/20/18
PRELIMINARY LAYOUT	
RELEASED FOR CONST.	

DRAWING INFORMATION

DATE	06/20/18
SCALE	AS SHOWN
DESIGNED	
CHECKED	



C-2.4
PEI JOB#: 17215.PE

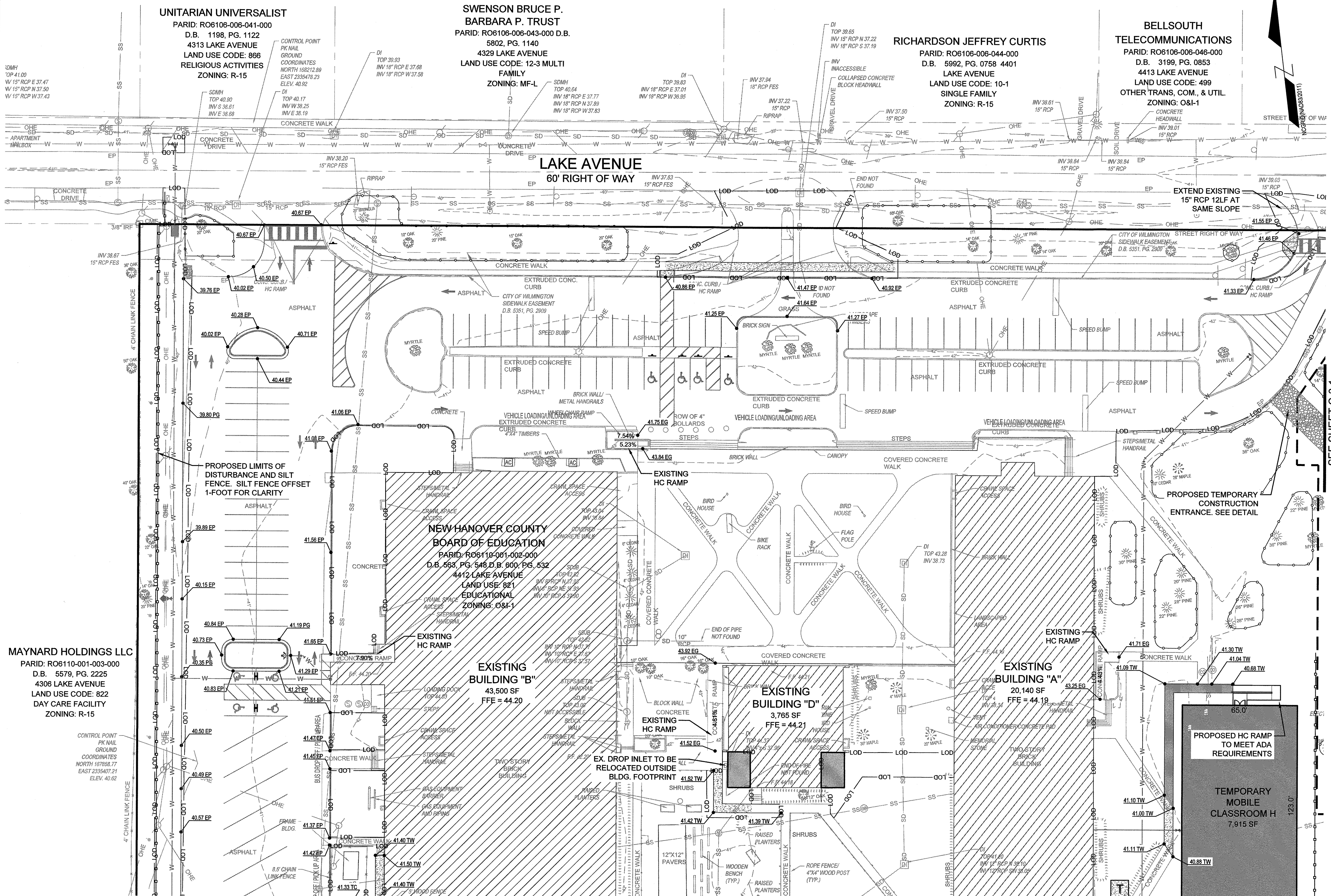


ASPHALT AREA NOTE:
 1. SITE CONTRACTOR SHALL STRIP TOPSOIL AND ANY UNSUITABLE MATERIAL AND PROVIDE CUT/FILL OPERATIONS TO PROVIDE A COMPACTED CONTROLLED SUBGRADE, IN ACCORDANCE WITH THE SUBSURFACE GEOTECHNICAL EXPLORATION AND TECHNICAL SPECIFICATIONS.

BUILDING PAD NOTE:
 1. SITE CONTRACTOR SHALL STRIP TOPSOIL AND ANY UNSUITABLE MATERIAL AND PROVIDE CUT/FILL OPERATIONS TO PROVIDE A COMPACTED CONTROLLED BUILDING PAD, IN ACCORDANCE WITH THE SUBSURFACE GEOTECHNICAL EXPLORATION AND TECHNICAL SPECIFICATIONS.

STORMWATER NOTE:
 1. THIS SITE DOES NOT HAVE ANY EXISTING STORMWATER MANAGEMENT MEASURES. PROPOSED WATER QUALITY IMPROVEMENTS INCLUDE PERVIOUS CONCRETE PARKING STALLS.
 2. THIS SITE DRAINS TO AN UNNAMED TRIBUTARY OF HEWLETTS CREEK.

GENERAL NOTES:
 1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL STATE OF NC, CITY OF WILMINGTON, AND NEW HANOVER COUNTY STANDARDS AND SPECIFICATIONS.
 2. THE CONTRACTOR SHALL PLACE INLET PROTECTION AROUND ALL STORM DRAIN INLETS TO PROTECT THE SYSTEM FROM COLLECTING SEDIMENTATION DURING CONSTRUCTION. INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE PARKING LOT IS PAVED.
 3. CONTRACTOR SHALL ADJUST ALL FRAMES OF EX. UTILITY INFRASTRUCTURE WITHIN ASPHALT OVERLAY AND NEW ASPHALT AREAS TO MATCH PROPOSED GRADES.
 4. ALL PROPOSED SPOT ELEVATIONS SHOWN IN THE PARKING LOT ARE PROPOSED EDGE OF PAVEMENT OR FACE OF CURB @ GUTTER FOR CURB SECTIONS, UNLESS NOTED OTHERWISE.
 5. ALL ROOF DRAINS SHALL BE DIRECTED TOWARDS ON-SITE COLLECTION SYSTEM. NO ROOF DRAINS SHALL BE DIRECTED OFF-SITE WITHOUT ENTERING THE ON-SITE COLLECTION FIRST.
 6. ALL SIDEWALK CROSS SLOPES HAVE BEEN GRADED TO MEET ADA REGULATIONS. CONTRACTOR SHALL CONFIRM GRADES BEFORE PLACING PAVEMENT OR SIDEWALKS AND REPORT ANY DISCREPANCIES TO OWNER AND/OR ENGINEER.
 7. THE CONTRACTOR SHALL USE EITHER RCP (CL. III) OR HDPE PIPE FOR THE STORM DRAINAGE SYSTEM. IF THE CONTRACTOR CHOOSES TO USE HDPE PIPE, IT SHALL BE ADS N-12 WT STORM PIPE OR APPROVED EQUAL AND SHALL BE INSTALLED TO MANUFACTURER SPECIFICATIONS. IN ADDITION, THE CONTRACTOR SHALL BE SURE TO PROVIDE CONCRETE COLLARS AROUND EACH F.E.S. TO PREVENT FLOATATION IF HDPE PIPE IS CHOSEN.
 8. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL ENGINEERING REPORT FOR COLLEGE PARK ELEMENTARY SCHOOL REPLACEMENT PREPARED BY S&M, PROJECT NUMBER 1306-15-028, AND DATED AUGUST 25, 2015 FOR SITE CONSTRUCTION RECOMMENDATIONS WHICH IS INCLUDED IN THE TECHNICAL SPECIFICATIONS.



MAYNARD HOLDINGS LLC
 PARID: R06110-001-000-000
 D.B. 5679, PG. 2225
 4306 LAKE AVENUE
 LAND USE CODE: 822
 DAY CARE FACILITY
 ZONING: R-15

NEW HANOVER COUNTY BOARD OF EDUCATION
 PARID: R06110-001-002-000
 D.B. 5663, PG. 548 D.B. 600, PG. 532
 4412 LAKE AVENUE
 LAND USE CODE: 821
 EDUCATIONAL
 ZONING: O&I-1

EXISTING BUILDING "B"
 43,500 SF
 FFE = 44.20

EXISTING BUILDING "D"
 3,765 SF
 FFE = 44.21

EXISTING BUILDING "A"
 20,140 SF
 FFE = 44.19

PROPOSED HC RAMP TO MEET ADA REQUIREMENTS
TEMPORARY MOBILE CLASSROOM H
 7,915 SF

LEGEND:

--- 16 ---	EXISTING CONTOUR
--- 29 ---	PROPOSED CONTOUR
EG=25.05	EXISTING SPOT ELEVATION
EP=25.05	PROPOSED ELEVATION OF PAVEMENT
TW=25.05	PROPOSED SIDEWALK ELEVATION
SW=25.05	PROPOSED GUTTER FLOW LINE
TC=25.05	PROPOSED TOP OF CURB ELEVATION
[Symbol]	INLET PROTECTION
[Symbol]	LIMITS OF DISTURBANCE
[Symbol]	SILT FENCE
[Symbol]	TREE PROTECTION FENCING
[Symbol]	DRAINAGE FLOW PATH
[Symbol]	DRAINAGE INLET LABEL
[Symbol]	SPILL GUTTER
[Symbol]	ROCK INLET PROTECTION
[Symbol]	GEOTECH BORING LOCATION

NOTATION:

CJ	= CURB INLET
DI	= DROP INLET
CO	= CLEANOUT
DDI	= DOUBLE DROP INLET
MH	= STORM DRAIN MANHOLE
RD	= ROAD DRAIN CLEANOUT
FFE	= FINISHED FLOOR ELEVATION
BPE	= BUILDING PAD ELEVATION



SEE SHEET C-3.1

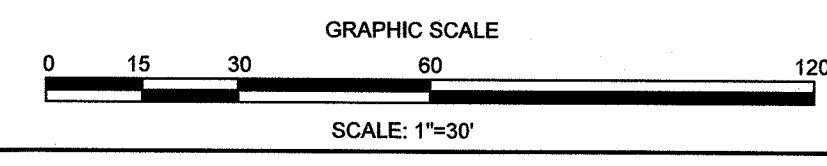
CITY OF WILMINGTON
 NORTH CAROLINA
 Public Services • Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: 6/21/18
 Signed: [Signature]

Approved Construction Plan
 Name: Nicole D Smith
 Date: 6/20/18
 Planning: [Signature]
 Traffic: [Signature] 6-20-18
 Fire: [Signature] 6-21-18

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



NCDCNR PWSS WATER PERMIT #: _____ GPD
 WATER CAPACITY: _____ GPD
 DWQ SEWER PERMIT #: _____ GPD
 SEWER CAPACITY: _____ GPD
 SEWER SHED # AND PLANT: _____
 SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)



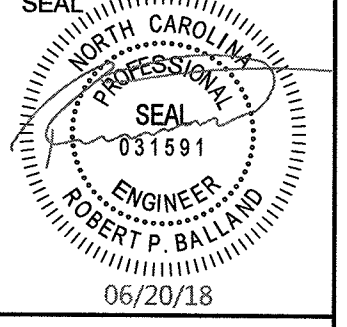
REVISIONS:

CLIENT INFORMATION:
BECKER MORGAN GROUP
 3205 RANDALL PKWY, #211
 WILMINGTON, NC 28403

PARAMOUNT ENGINEERING
 122 Cinema Drive
 Wilmington, North Carolina 28403
 (910) 791-6707 (O) (910) 791-6760 (F)
 NC License #: C-2846

GRADING-DRAINAGE & EROSION CONTROL PLAN
 ROLAND GRISE MIDDLE SCHOOL
 4412 LAKE AVENUE
 WILMINGTON, NORTH CAROLINA

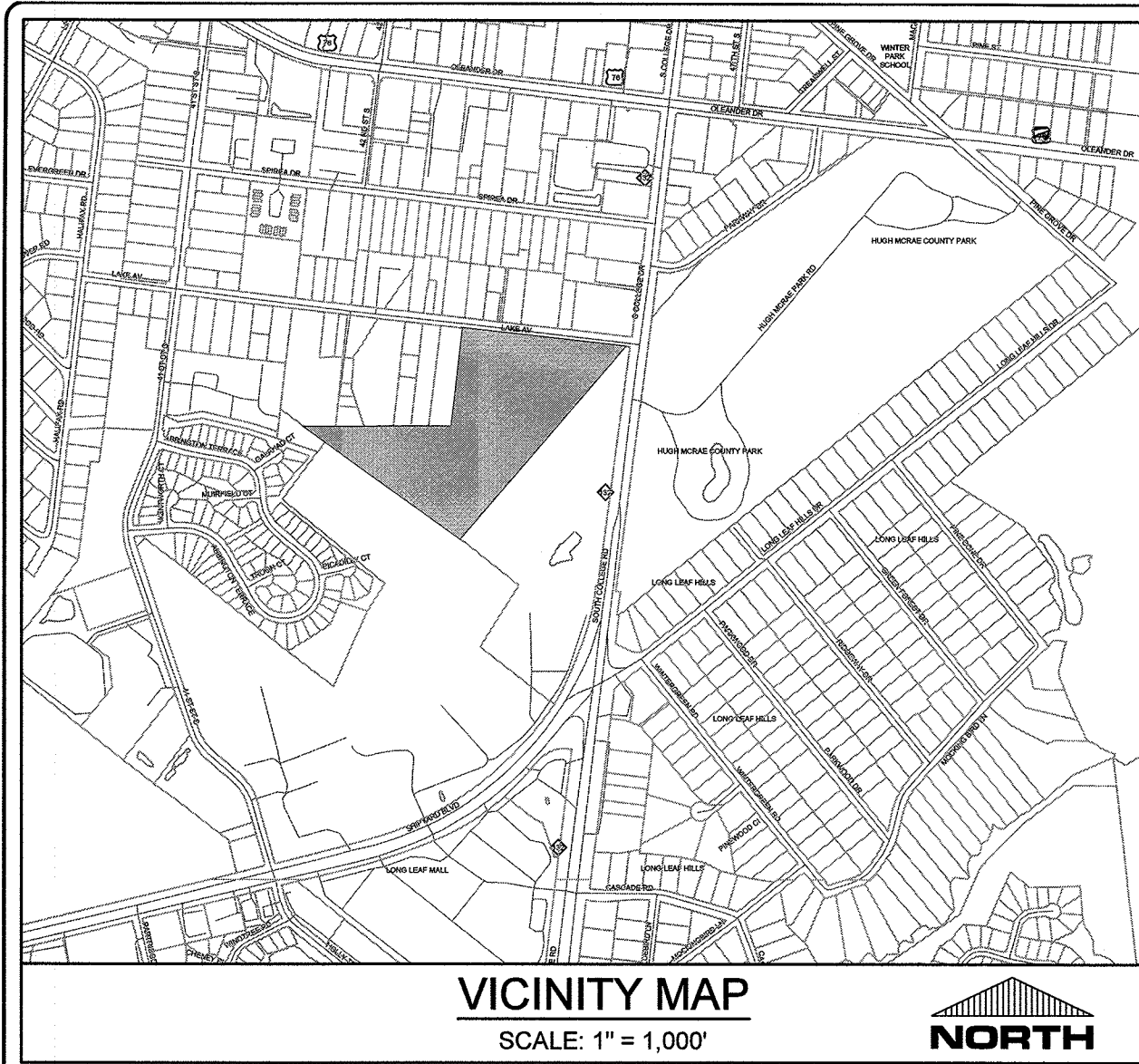
PROJECT STATUS
 PRELIMINARY LAYOUT: 06/20/18
 FINAL DESIGN: 06/20/18
 RELEASED FOR CONSTRUCTION: 06/20/18
DRAWING INFORMATION
 DATE: 06/20/18
 SCALE: 1" = 30'
 DRAWN: RPB
 CHECKED: RPB



C-3.0

PEI JOB#: 17215.PE

RELEASED FOR CONSTRUCTION



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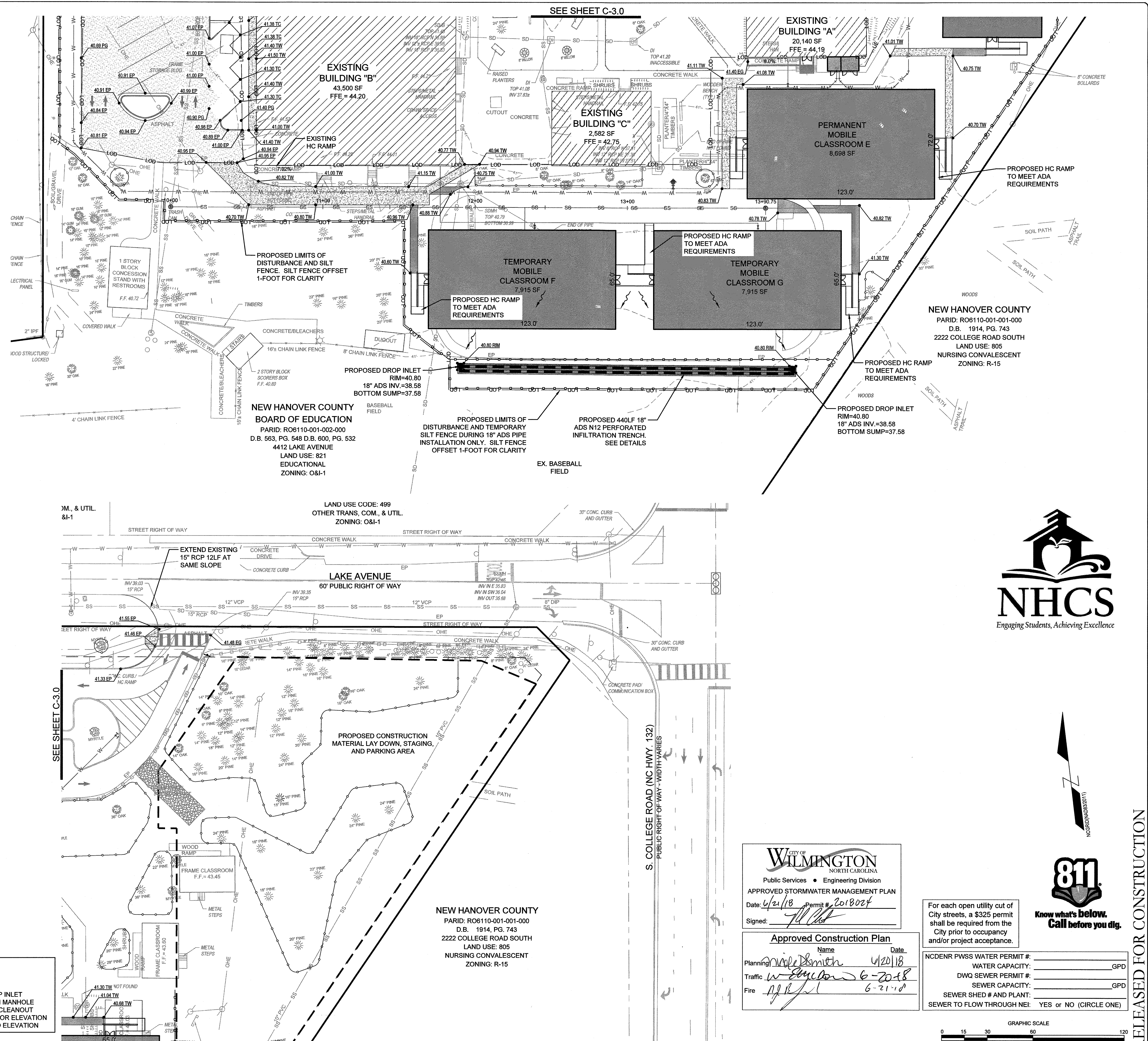
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LEGEND:

--- 1G ---	EXISTING CONTOUR
--- 29 ---	PROPOSED CONTOUR
EG=25.05	EXISTING SPOT ELEVATION
EP=25.05	PROPOSED EDGE OF PAVEMENT
TW=25.05	PROPOSED SIDEWALK ELEVATION
SW=25.05	PROPOSED GUTTER FLOW LINE
TC=25.05	PROPOSED TOP OF CURB ELEVATION
[Symbol]	INLET PROTECTION
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[Symbol]	SPILL GUTTER
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DDI	= DOUBLE DROP INLET
MH	= STORM DRAIN MANHOLE
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CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: 6/21/18 Permit # 2018024
Signed: [Signature]

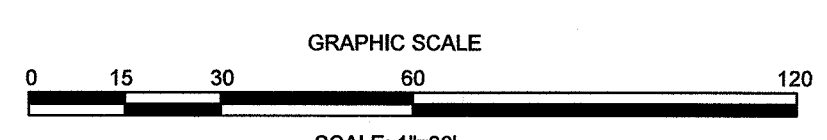
Approved Construction Plan

Planning	Name	Date
Traffic	W. E. [Signature]	6-21-18
Fire	A. B. [Signature]	6-21-18

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

811
Know what's below. Call before you dig.

NC DENR PWSS WATER PERMIT # _____ GPD
WATER CAPACITY: _____ GPD
DWQ SEWER PERMIT # _____ GPD
SEWER CAPACITY: _____ GPD
SEWER SHED # AND PLANT: _____
SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)



REVISIONS:

CLIENT INFORMATION:
BECKER MORGAN GROUP
3205 RANDALL PKWY., #211
WILMINGTON, NC 28403

PARAMOUNT ENGINEERING
122 Citizens Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

GRADING-DRAINAGE & EROSION CONTROL PLAN
ROLAND GRISE MIDDLE SCHOOL
4412 LAKE AVENUE
WILMINGTON, NORTH CAROLINA

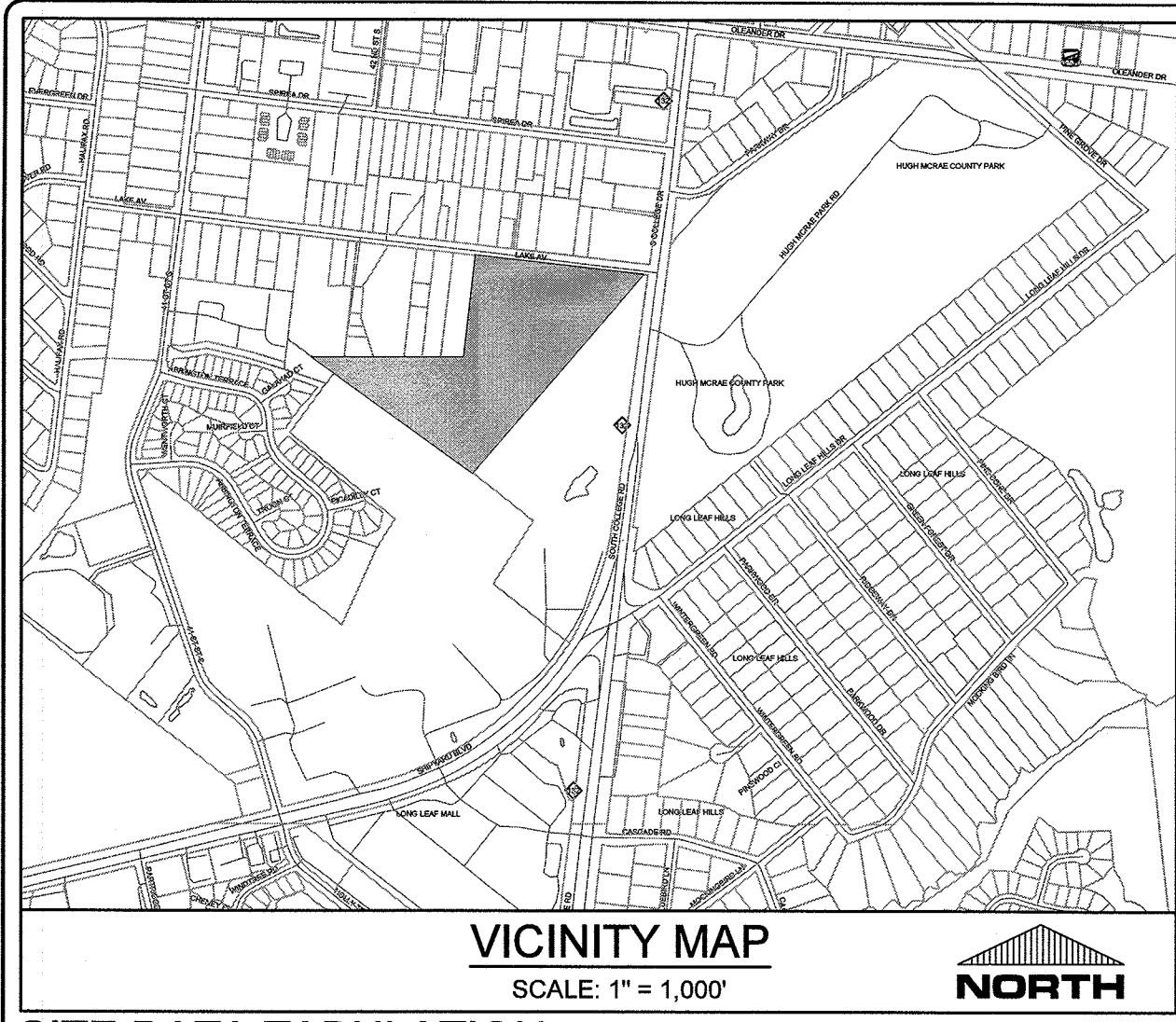
PROJECT STATUS:
CONCEPT LAYOUT: 06/20/18
PRELIMINARY LAYOUT: 06/20/18
RELEASED FOR CONST: 06/20/18

DRAWING INFORMATION:
SCALE: 1"=30'
DESIGNED: [Signature]
CHECKED: [Signature]

SEAL:
NORTH CAROLINA PROFESSIONAL ENGINEER
ROBERT BALLARD
031591
06/20/18

C-3.1
PEI JOB#: 17215.PE

RELEASED FOR CONSTRUCTION



SITE DATA TABULATION

OWNER: NEW HANOVER COUNTY BOARD OF ED.
PROJECT ADDRESS: 4412 LAKE AVENUE WILMINGTON, NC 28403
TAX PARCEL IDENTIFICATION #: R06110-001-002-000 (28.01 AC)
RECORDED DEED BOOK: BK 0563, PG 548331
TOTAL SITE AREA: 28.0144 ACRES (1,220,307 SF)
CURRENT ZONING: O&I-1 OFFICE & INSTITUTIONAL DISTRICT 1
CAMA LAND USE CLASSIFICATION: URBAN
MAXIMUM ALLOWABLE BUILDING HEIGHT: 45'
EXISTING LAND USE: MIDDLE SCHOOL
PROPOSED LAND USE: MIDDLE SCHOOL

UTILITY INFORMATION
SANITARY SEWER
 THIS PROJECT IS UTILIZING ALL EXISTING SEWER SERVICES. THIS PROJECT IS ALSO PROVIDING A NEW 4-INCH SEWER SERVICE TO THE PROPOSED MOBILE CLASSROOMS AND SANITARY SEWER ALLOCATION IS PROVIDED BY CFPWA.

WATER
 A 8-INCH WATER MAIN IS LOCATED WITHIN THE FAR SIDE OF LAKE AVENUE RIGHT OF WAY. THE EXISTING BUILDINGS ARE PROPOSED TO HAVE AN 8-INCH FIRE SERVICE AND A 3/4-INCH DOMESTIC SERVICE WILL BE CONNECTED TO THE PROPOSED MOBILE CLASSROOMS. THE SITE IS CURRENTLY SERVICED BY A 4-INCH COMPOUND METER. DOMESTIC AND FIRE WATER ALLOCATION PROVIDED BY CFPWA.

NATURAL GAS
 THERE IS AN EXISTING 2" PLASTIC GAS MAIN LOCATED ALONG THE SOUTH SIDE OF LAKE AVENUE WITH A 1-1/4" AND 3/8" SERVICES IN THE SITE. GAS IS PROVIDED BY PIEDMONT NATURAL GAS.

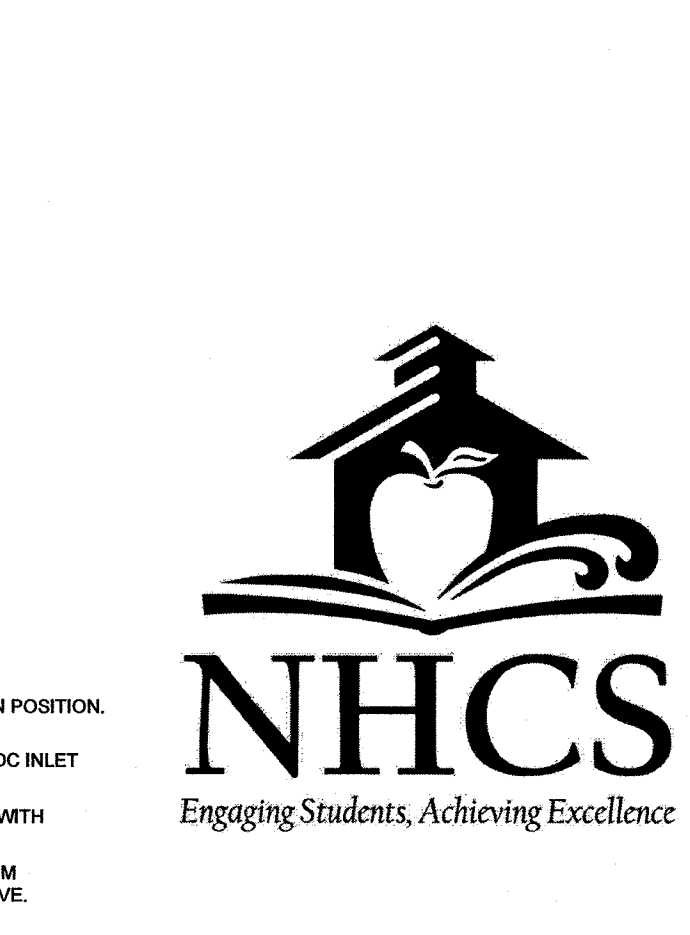
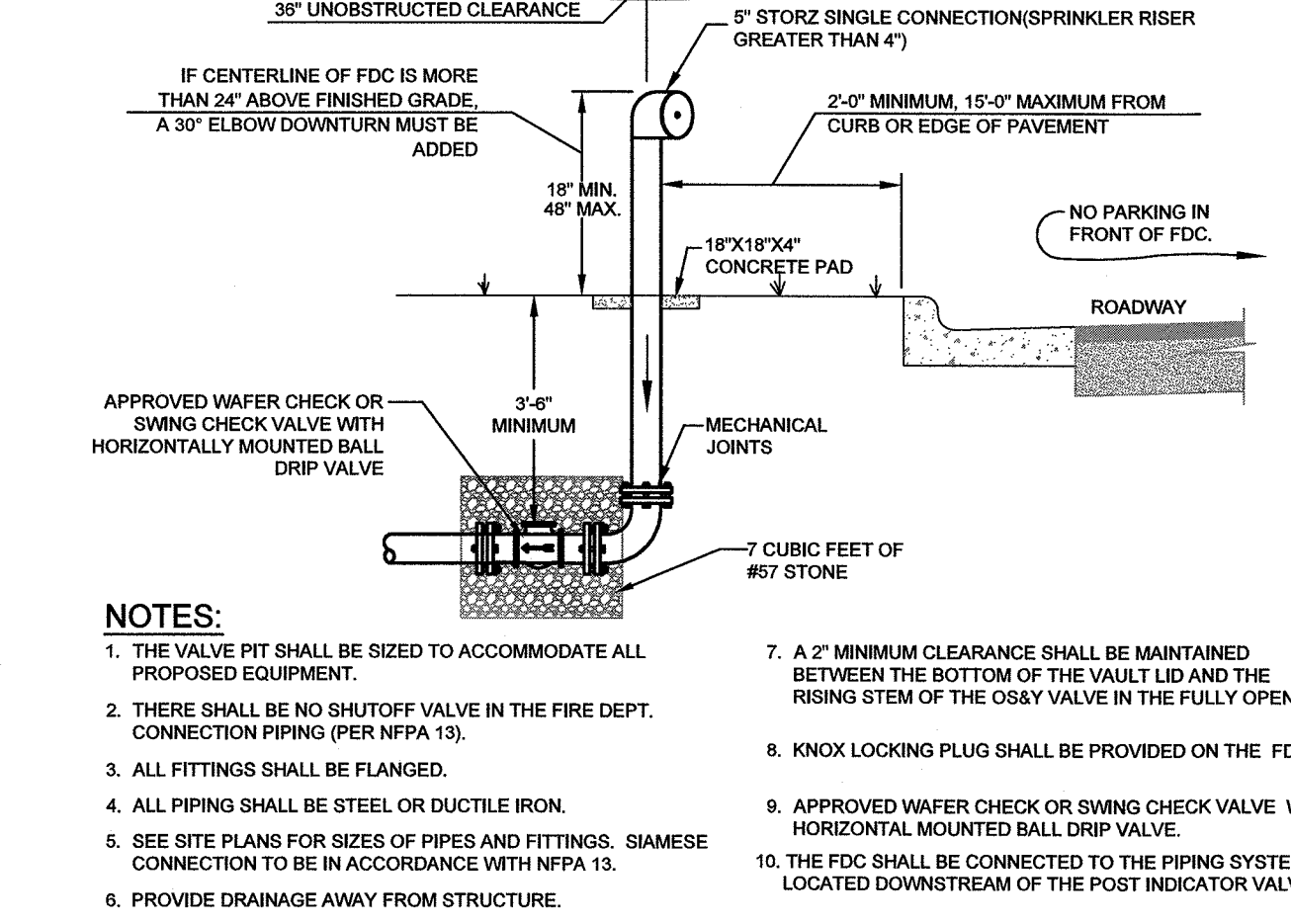
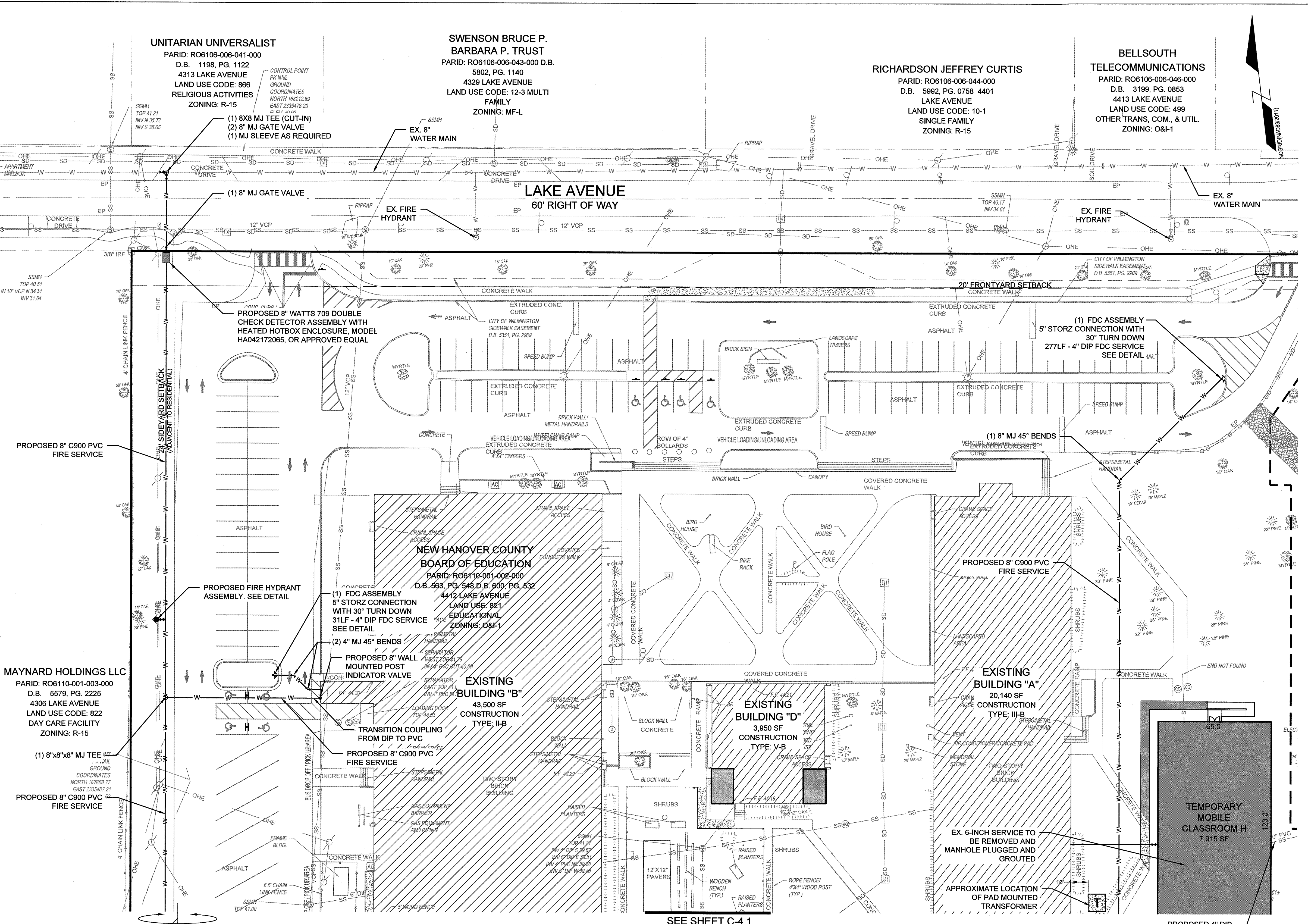
FLOOD NOTE
 THIS TRACT IS LOCATED IN FLOOD ZONE X (AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO FEMA FLOOD INSURANCE RATE MAP NUMBER 3720313600J, MAP REVISED 04/03/06.

UTILITY NOTES: (NCAC 15A.02T.0305 / T15A.18C.0906)

1. WATER MAINS SHALL BE LAID SO AS TO PROVIDE A MINIMUM HORIZONTAL SEPARATION OF 10 FEET FROM SEWERS. IF CONDITIONS EXIST SUCH THAT THIS SEPARATION CANNOT BE ACHIEVED, THE WATER MAIN CAN BE INSTALLED AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER, EITHER IN A SEPARATE TRENCH, OR IN THE SAME TRENCH ON A BENCH OF UNDISTURBED EARTH.
2. WHEN CROSSING A WATER MAIN OVER A SEWER, THE WATER MAIN SHALL BE LAID AT LEAST 18 INCHES ABOVE THE SEWER. IF CONDITIONS EXIST SUCH THAT THIS SEPARATION CANNOT BE ACHIEVED, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH JOINTS THAT MEET WATER MAIN STANDARDS. THE DUCTILE IRON PIPE SHALL EXTEND 10 FEET ON EACH SIDE OF THE CROSSING WITH A SECTION OF WATER MAIN PIPE CENTERED ON THE CROSSING.
3. CROSSING A WATER MAIN UNDER A SEWER, WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER, BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
4. WHERE VERTICAL CLEARANCE IS LESS THAN 24" BETWEEN SANITARY SEWER AND STORM DRAIN, SANITARY SEWER SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING AND STORM DRAIN SHALL BE RC PIPE.
5. WHERE VERTICAL CLEARANCE IS LESS THAN 18" BETWEEN WATER MAIN AND STORM DRAIN, WATER MAIN SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING AND STORM DRAIN SHALL BE RC PIPE.

FIRE & LIFE SAFETY NOTES:

1. NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDINGS WITHIN ANY DEVELOPMENT.
2. HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB.
3. CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION. THIS CAN BE SATISFIED BY INSTALLING THE BASE COURSE OF THE PROPOSED PAVEMENT SECTION.
4. A MINIMUM OF 5' SHALL SEPARATE UNDERGROUND FIRE LINES OR PRIVATE WATER MAINS FROM OTHER UNDERGROUND UTILITIES.
5. UNDERGROUND FIRE LINE & PRIVATE WATER MAINS MUST BE PERMITTED & INSPECTED BY CITY OF WILMINGTON FIRE & LIFE SAFETY SERVICES FROM THE PUBLIC RIGHT-OF-WAY TO THE BUILDING.
6. ANY FDC MUST BE WITHIN 150' OF A FIRE HYDRANT & WITHIN 40' OF FIRE APPARATUS PLACEMENT.
7. LANDSCAPING OR PARKING CAN NOT BLOCK OR IMPEDE THE FDC OR FIRE HYDRANTS. A 3-FOOT (3') CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF HYDRANTS AND FDC.



CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD SEWER NOTES:

1. SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
2. WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT R/W LINE. SEWER SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN END OF LINE MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
3. ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
4. MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
5. NO FLEXIBLE COUPLINGS SHALL BE USED.
6. ALL STAINLESS STEEL FASTENERS SHALL BE 316.
7. CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.

CITY OF WILMINGTON
 NORTH CAROLINA
 Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
 Date: 6/21/18 permit # 2018024
 Signed: [Signature]

Approved Construction Plan

Name	Date
Planning: Nicole Smith	6/20/18
Traffic: [Signature]	6-20-18
Fire: [Signature]	6-21-18

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

NCDEN PWSS WATER PERMIT #: _____
WATER CAPACITY: _____ GPD
DWQ SEWER PERMIT #: _____
SEWER CAPACITY: _____ GPD
SEWER SHED # AND PLANT: _____
SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)



REVISIONS:

CLIENT INFORMATION:
 BECKER MORGAN GROUP
 3205 RANDALL PKWY. #211
 WILMINGTON, NC 28403

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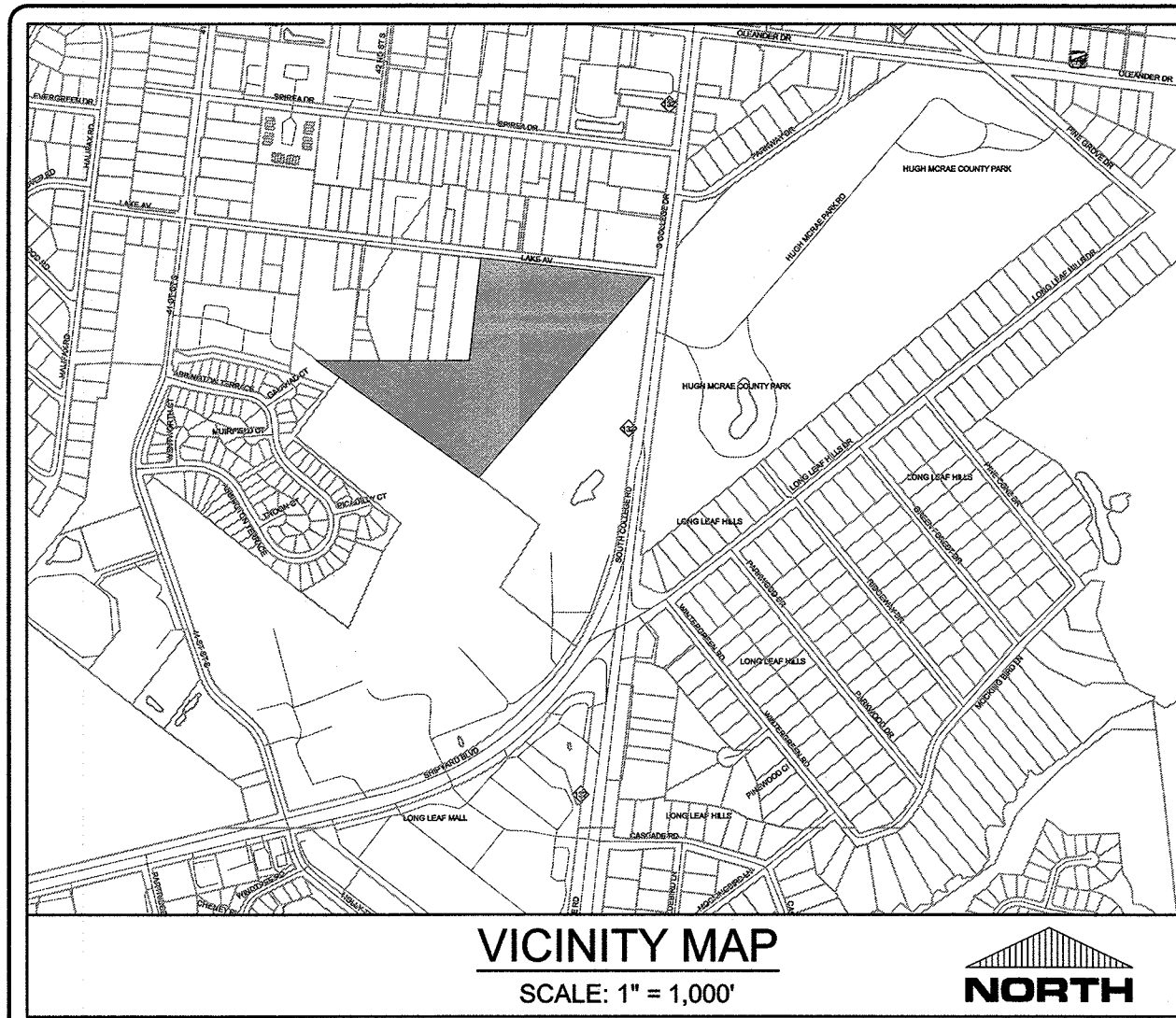
UTILITY PLAN
 ROLAND GRISE MIDDLE SCHOOL
 4412 LAKE AVENUE
 WILMINGTON, NORTH CAROLINA

RELEASED FOR CONSTRUCTION

PROJECT STATUS:
 CONCEPT LAYOUT: _____
 PRELIMINARY LAYOUT: _____
 FINAL DESIGN: _____
 DRAWING INFORMATION:
 DATE: 06/20/18
 DESIGNED: [Signature]
 DRAWN: [Signature]
 CHECKED: [Signature]

SEAL:
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL # 031591
 ROBERT F. BALLA
 06/20/18

C-4.0
 PEI JOB#: 17215.PE



SITE DATA TABULATION

OWNER: NEW HANOVER COUNTY BOARD OF ED.
 PROJECT ADDRESS: 4412 LAKE AVENUE WILMINGTON, NC 28403
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 MAXIMUM ALLOWABLE BUILDING HEIGHT: MIDDLE SCHOOL
 EXISTING LAND USE: MIDDLE SCHOOL
 PROPOSED LAND USE: MIDDLE SCHOOL

UTILITY INFORMATION

SANITARY SEWER
 THIS PROJECT IS UTILIZING EXISTING SEWER SERVICES TO THE MAIN BUILDINGS AND A NEW 4-INCH SEWER SERVICE TO THE PROPOSED TEMPORARY AND PERMANENT MOBILE CLASSROOMS AND SANITARY SEWER ALLOCATION IS PROVIDED BY CFPUA.

WATER
 A 8-INCH WATER MAIN IS LOCATED WITHIN THE FAR SIDE OF LAKE AVENUE RIGHT OF WAY. THE EXISTING BUILDINGS ARE PROPOSED TO HAVE AN 8-INCH FIRE SERVICE. THE PROPOSED MOBILE CLASSROOMS WILL HAVE DOMESTIC SERVICES ONLY PROVIDED FROM EXISTING BUILDINGS "A" AND "B" AS SHOWN. DOMESTIC AND FIRE WATER ALLOCATION PROVIDED BY CFPUA.

NATURAL GAS
 THERE IS AN EXISTING 2" PLASTIC GAS MAIN LOCATED ALONG THE SOUTH SIDE OF LAKE AVENUE WITH A 1-1/4" AND 3/8" SERVICES IN THE SITE. GAS IS PROVIDED BY PIEDMONT NATURAL GAS.

FLOOD NOTE

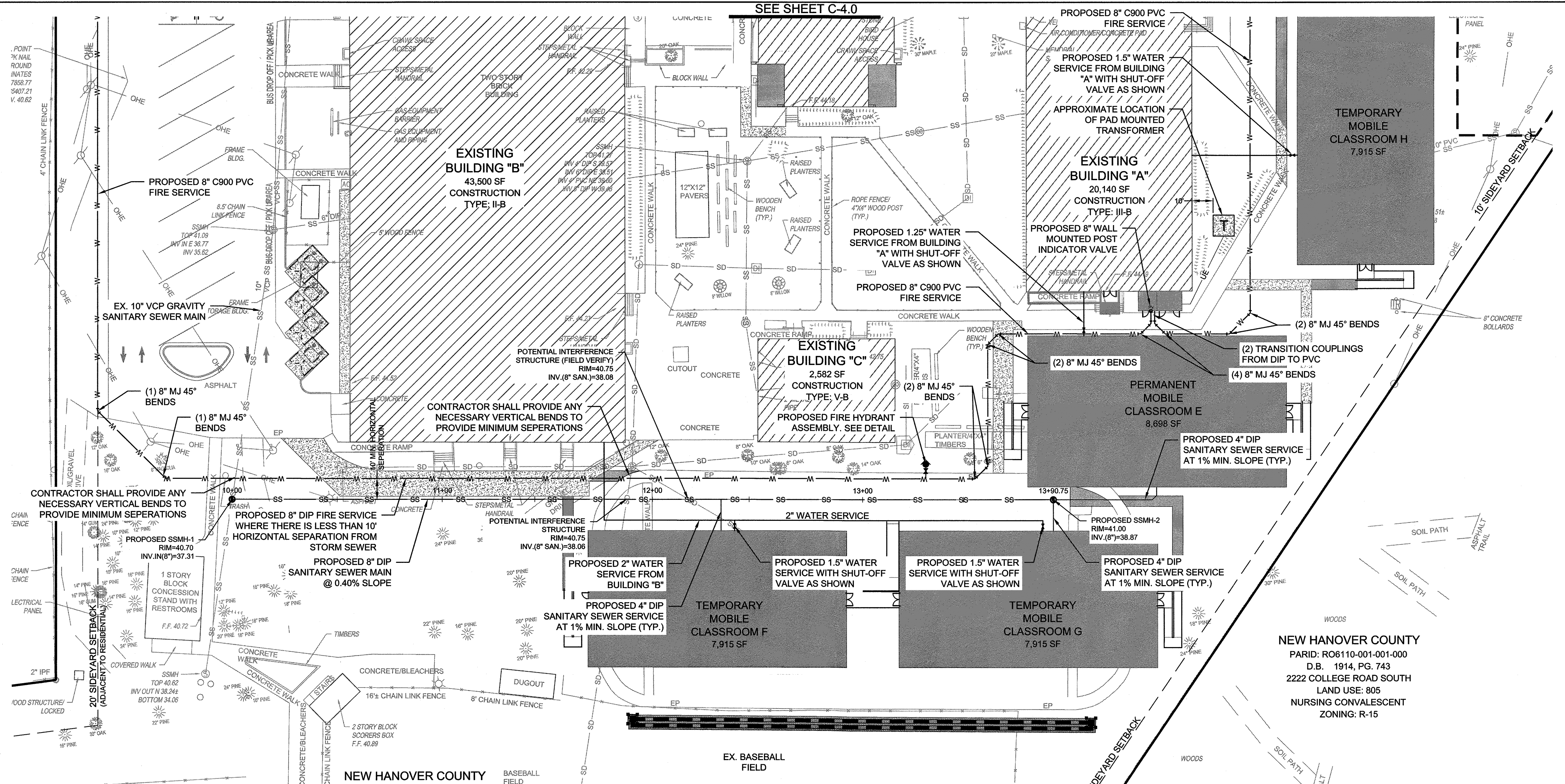
THIS TRACT IS LOCATED IN FLOOD ZONE X (AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO FEMA FLOOD INSURANCE RATE MAP NUMBER 3720313600J, MAP REVISED 04/03/06.

UTILITY NOTES: (NCAC 15A.02T.0305 / T15A.18C.0906)

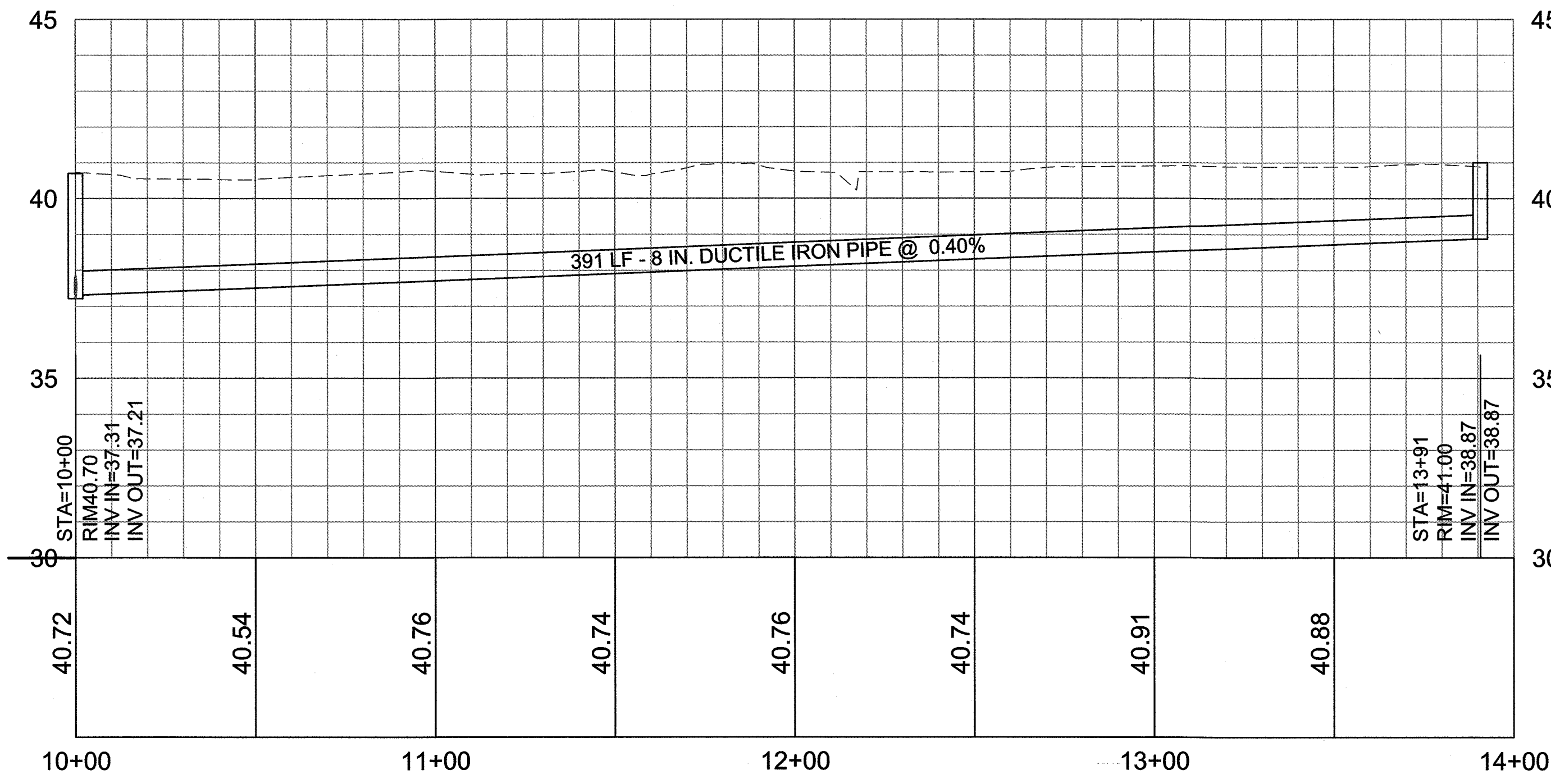
- WATER MAINS SHALL BE LAID SO AS TO PROVIDE A MINIMUM HORIZONTAL SEPARATION OF 10 FEET FROM SEWERS. IF CONDITIONS EXIST SUCH THAT THIS SEPARATION CANNOT BE ACHIEVED, THE WATER MAIN CAN BE INSTALLED AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER, EITHER IN A SEPARATE TRENCH, OR IN THE SAME TRENCH ON A BENCH OF UNDISTURBED EARTH.
- WHEN CROSSING A WATER MAIN OVER A SEWER, THE WATER MAIN SHALL BE LAID AT LEAST 18 INCHES ABOVE THE SEWER. IF CONDITIONS EXIST SUCH THAT THIS SEPARATION CANNOT BE ACHIEVED, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH JOINTS THAT MEET WATER MAIN STANDARDS. THE DUCTILE IRON PIPE SHALL EXTEND 10 FEET ON EACH SIDE OF THE CROSSING WITH A SECTION OF WATER MAIN PIPE CENTERED ON THE CROSSING.
- CROSSING A WATER MAIN UNDER A SEWER. WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER, BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
- WHERE VERTICAL CLEARANCE IS LESS THAN 24" BETWEEN SANITARY SEWER AND STORM DRAIN, SANITARY SEWER SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING AND STORM DRAIN SHALL BE RC PIPE.
- WHERE VERTICAL CLEARANCE IS LESS THAN 18" BETWEEN WATER MAIN AND STORM DRAIN, WATER MAIN SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING AND STORM DRAIN SHALL BE RC PIPE.

FIRE & LIFE SAFETY NOTES:

- NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDINGS WITHIN ANY DEVELOPMENT.
- HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB.
- CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION. THIS CAN BE SATISFIED BY INSTALLING THE BASE COURSE OF THE PROPOSED PAVEMENT SECTION.
- A MINIMUM OF 5' SHALL SEPARATE UNDERGROUND FIRE LINES OR PRIVATE WATER MAINS FROM OTHER UNDERGROUND UTILITIES.
- UNDERGROUND FIRE LINE & PRIVATE WATER MAINS MUST BE PERMITTED & INSPECTED BY CITY OF WILMINGTON FIRE & LIFE SAFETY SERVICES FROM THE PUBLIC RIGHT-OF-WAY TO THE BUILDING.
- ANY FDC MUST BE WITHIN 150' OF A FIRE HYDRANT & WITHIN 40' OF FIRE APPARATUS PLACEMENT.
- LANDSCAPING OR PARKING CAN NOT BLOCK OR IMPEDE THE FDC OR FIRE HYDRANTS. A 3-FOOT (3') CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF HYDRANTS AND FDC.



SANITARY SEWER - PLAN VIEW
 HORIZONTAL SCALE: 1"=30'



SANITARY SEWER - PROFILE VIEW
 HORIZONTAL SCALE: 1"=30'
 VERTICAL SCALE: 1"=3'

WATER & SEWER SERVICE CONNECTION NOTES:

- SITE CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS TO PERMANENT AND TEMPORARY MOBILE UNITS. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS OF MOBILE UNITS PROVIDED BY OWNER FOR FINAL SIZE AND CONNECTION LOCATION.
- ALL SERVICE CONNECTIONS SHALL BE IN CONFORMANCE WITH CFPUA STANDARD DETAILS AND TECHNICAL SPECIFICATIONS.

CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD SEWER NOTES:

- SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
- WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT R/W LINE. SEWER SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN END OF LINE MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
- ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
- MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
- NO FLEXIBLE COUPLINGS SHALL BE USED.
- ALL STAINLESS STEEL FASTENERS SHALL BE 316.
- CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.

APPROVED CONSTRUCTION PLAN

City of Wilmington, North Carolina
 Public Services • Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: 6/21/18 Permit #: 2018024
 Signed: [Signature]

Approved Construction Plan
 Name: Mike Smith Date: 6/20/18
 Planning: [Signature] Traffic: [Signature] Fire: [Signature]
 Date: 6-21-18

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

NCDENR PWSS WATER PERMIT #: _____ GPD
WATER CAPACITY: _____ GPD
DWQ SEWER PERMIT #: _____ GPD
SEWER CAPACITY: _____ GPD
SEWER SHED # AND PLANT: _____
SEWER TO FLOW THROUGH NEI: YES OR NO (CIRCLE ONE)

GRAPHIC SCALE
 0 15 30 60 90 120
 SCALE: 1"=30'

REVISIONS:

CLIENT INFORMATION:
 BECKER MORGAN GROUP
 3205 RANDALL PKWY., #211
 WILMINGTON, NC 28403

PARAMOUNT ENGINEERING
 122 Cinema Drive
 Wilmington, North Carolina 28403
 (910) 791-6707 (O) (910) 791-6760 (F)
 NC License #: C-2846

UTILITY PLAN
 ROLAND GRISE MIDDLE SCHOOL
 4412 LAKE AVENUE
 WILMINGTON, NORTH CAROLINA

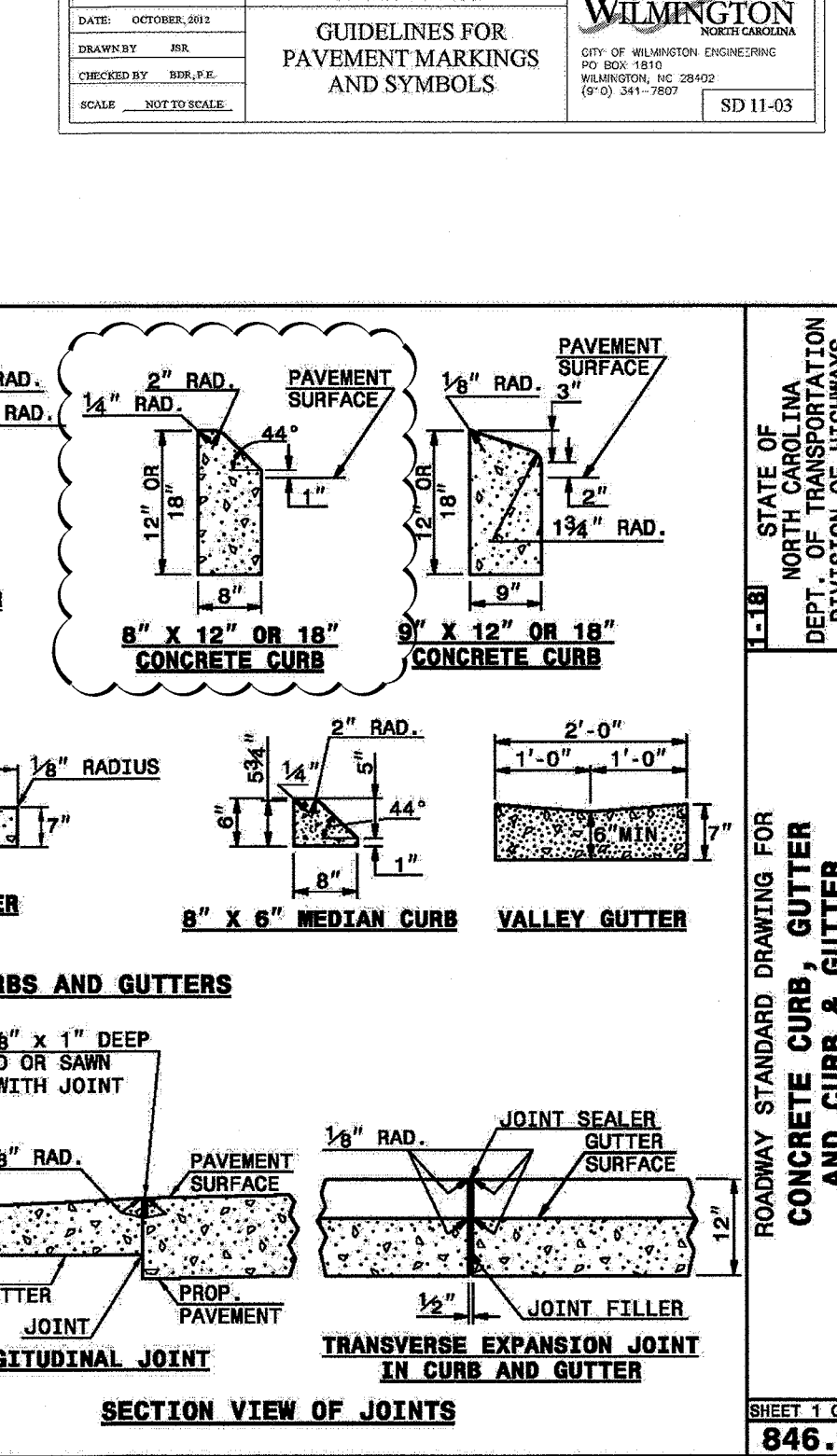
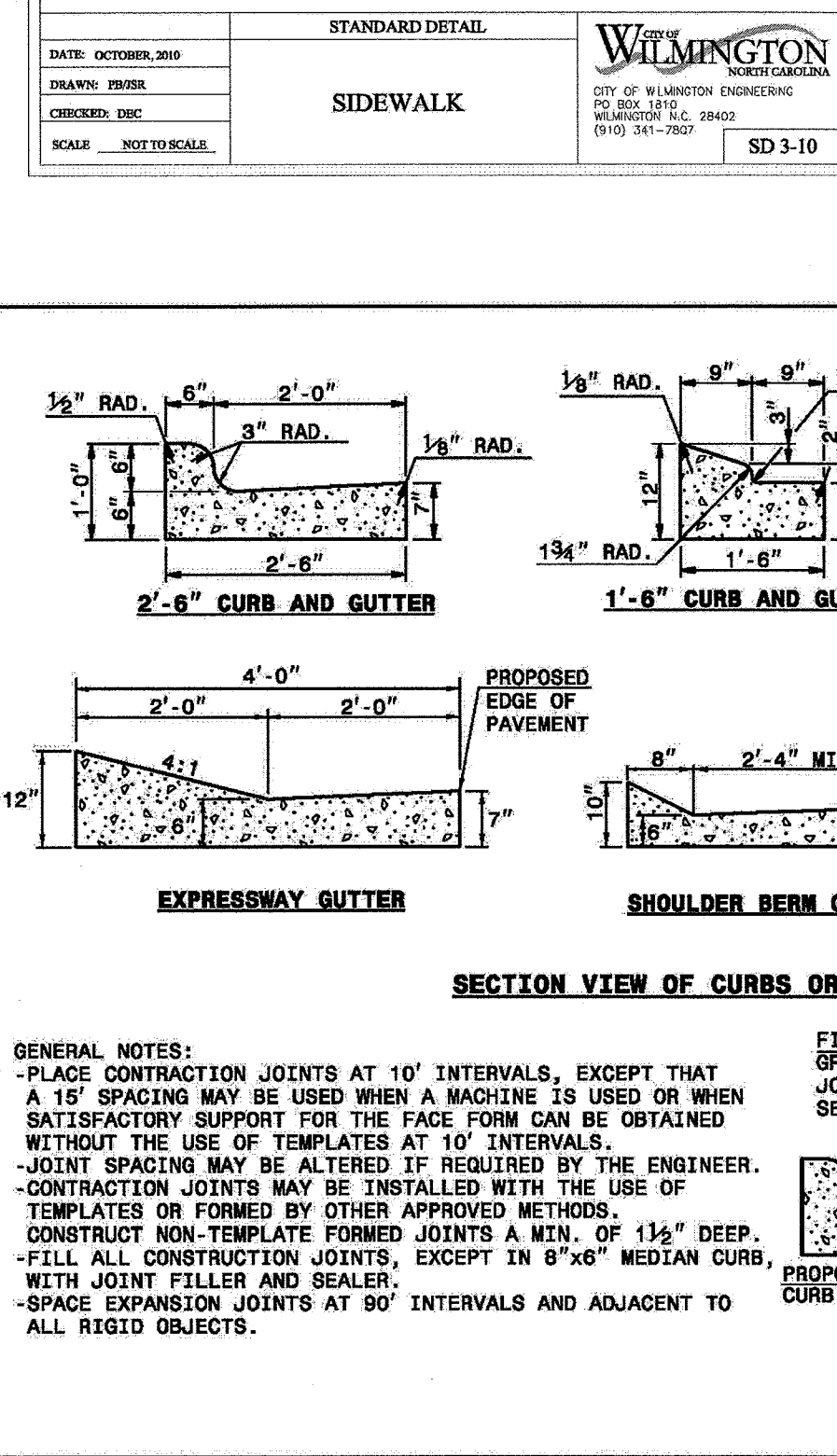
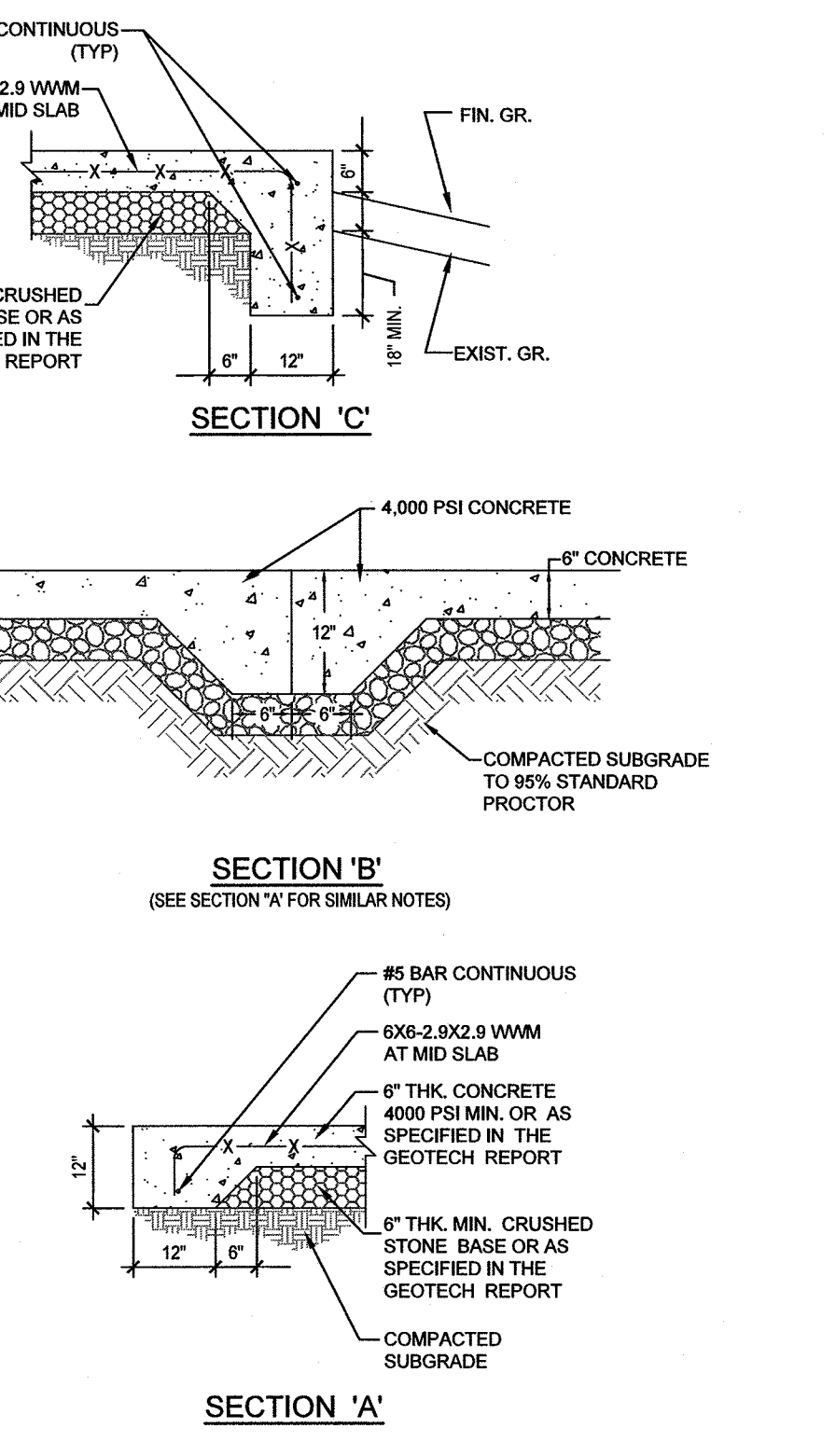
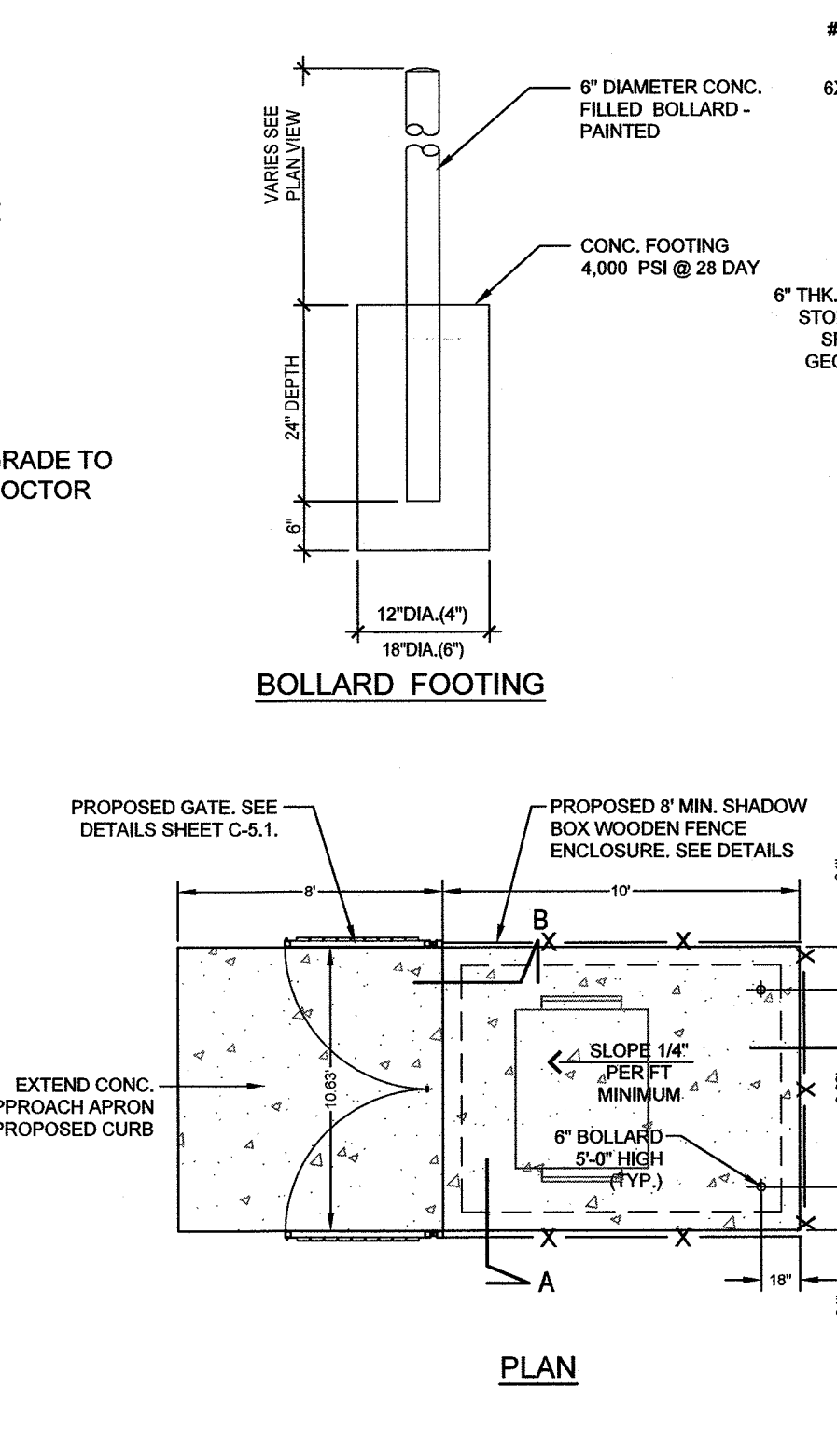
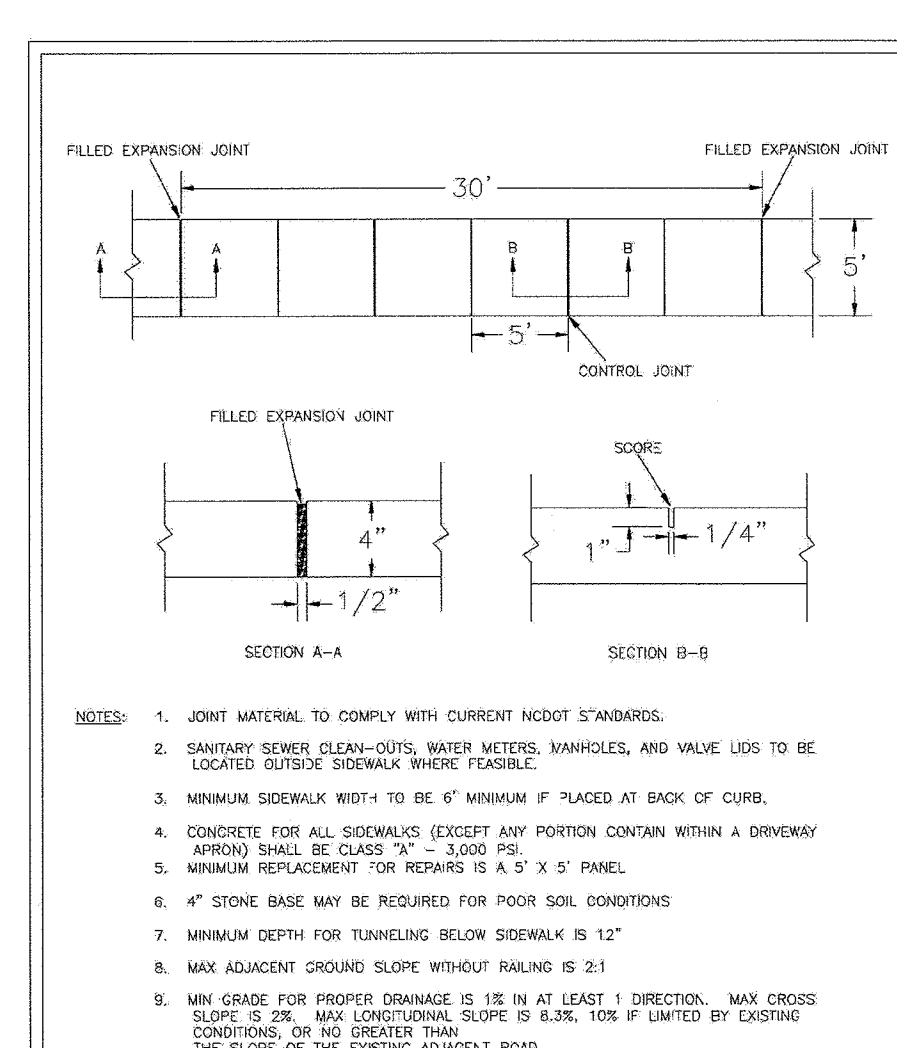
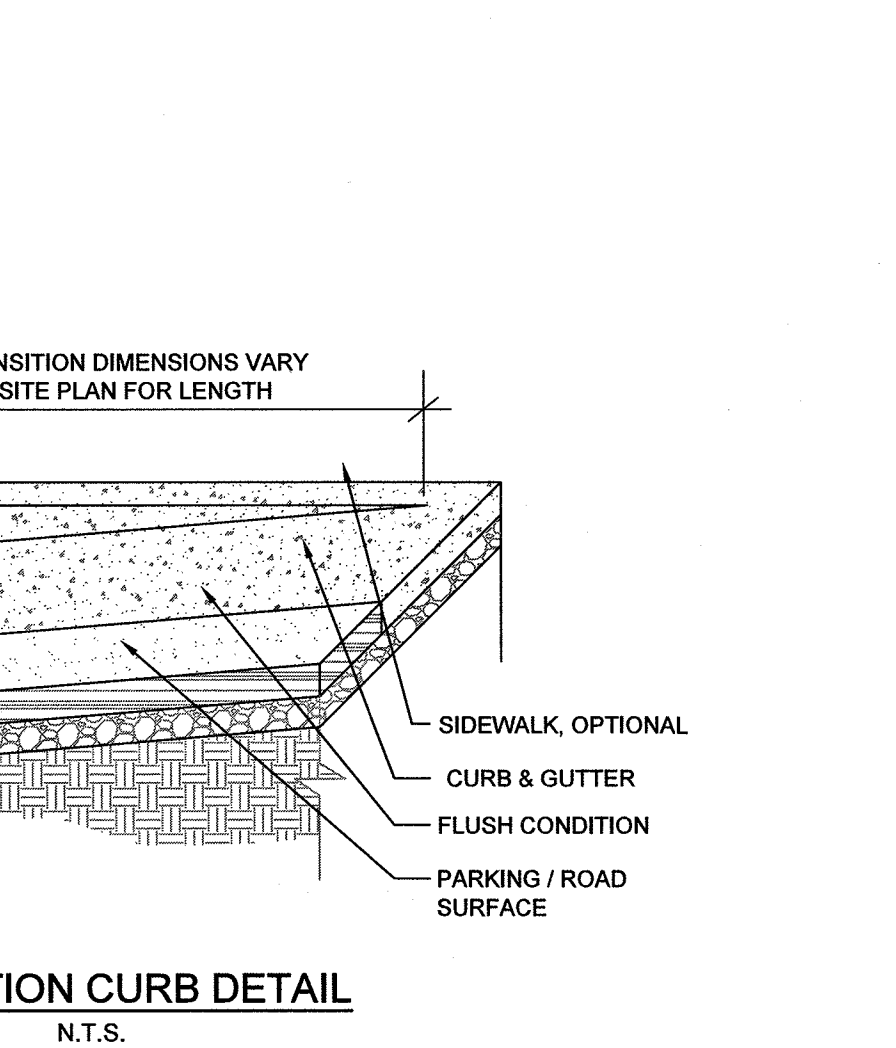
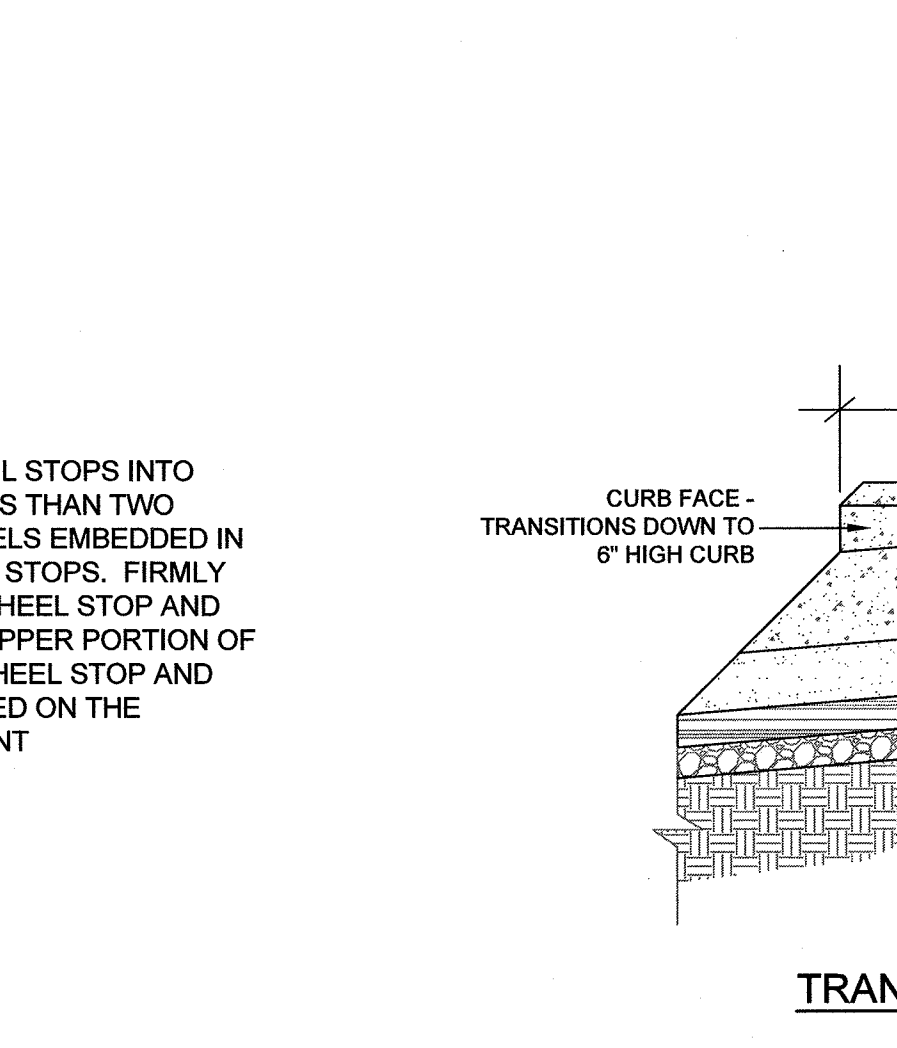
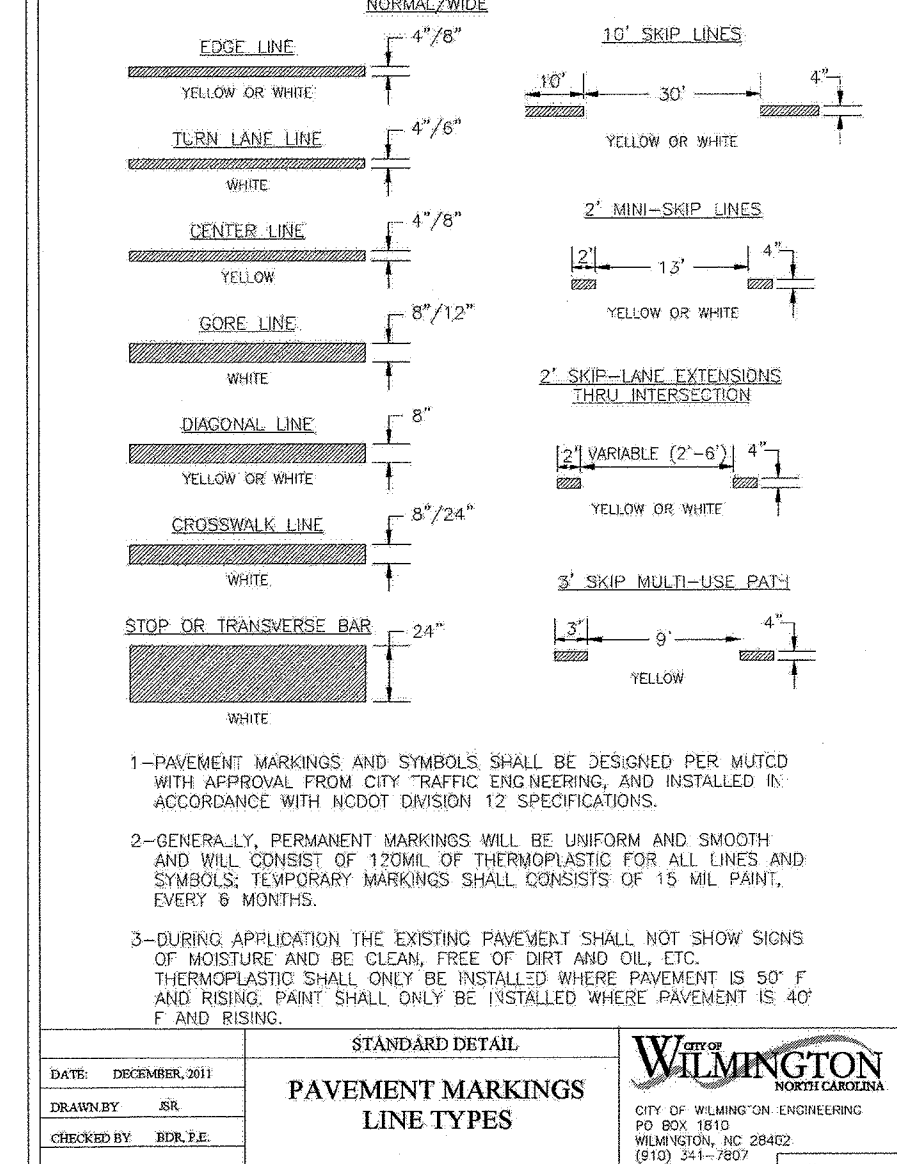
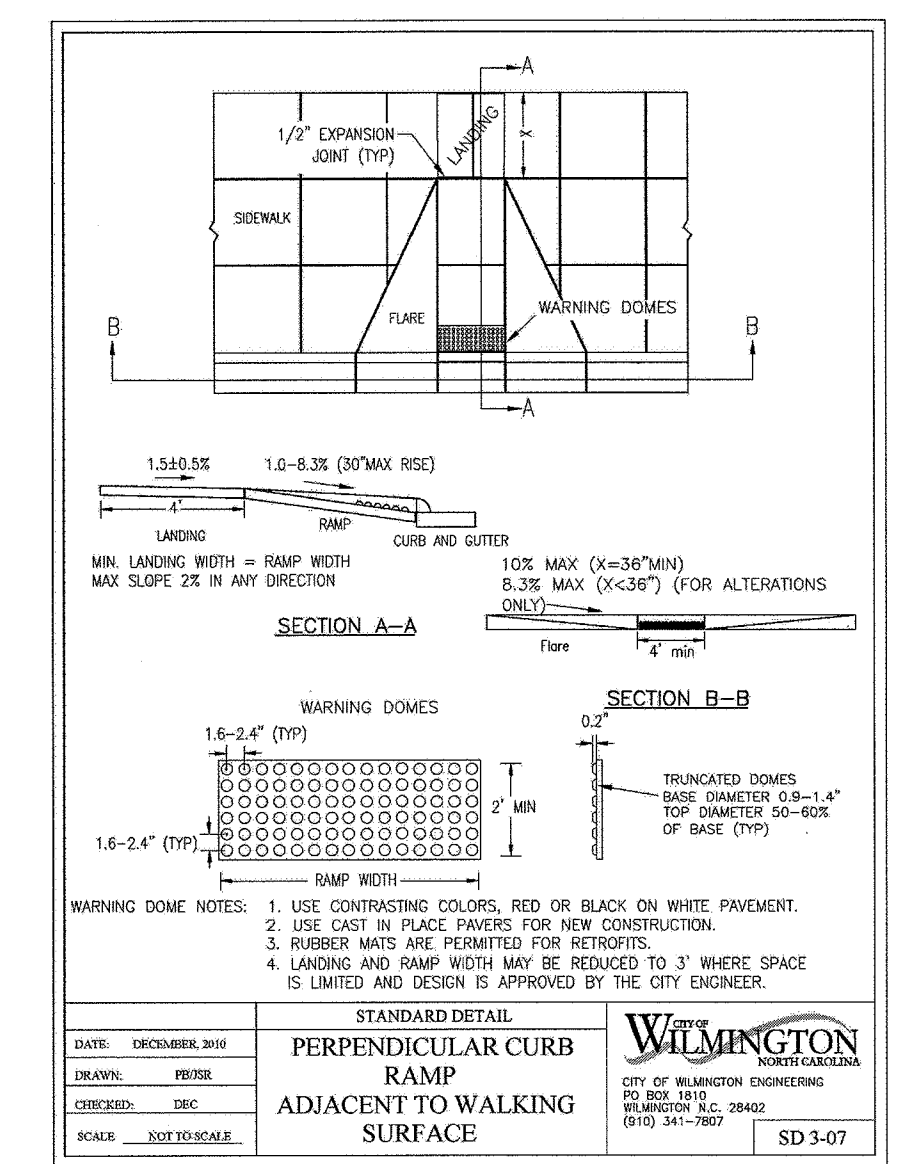
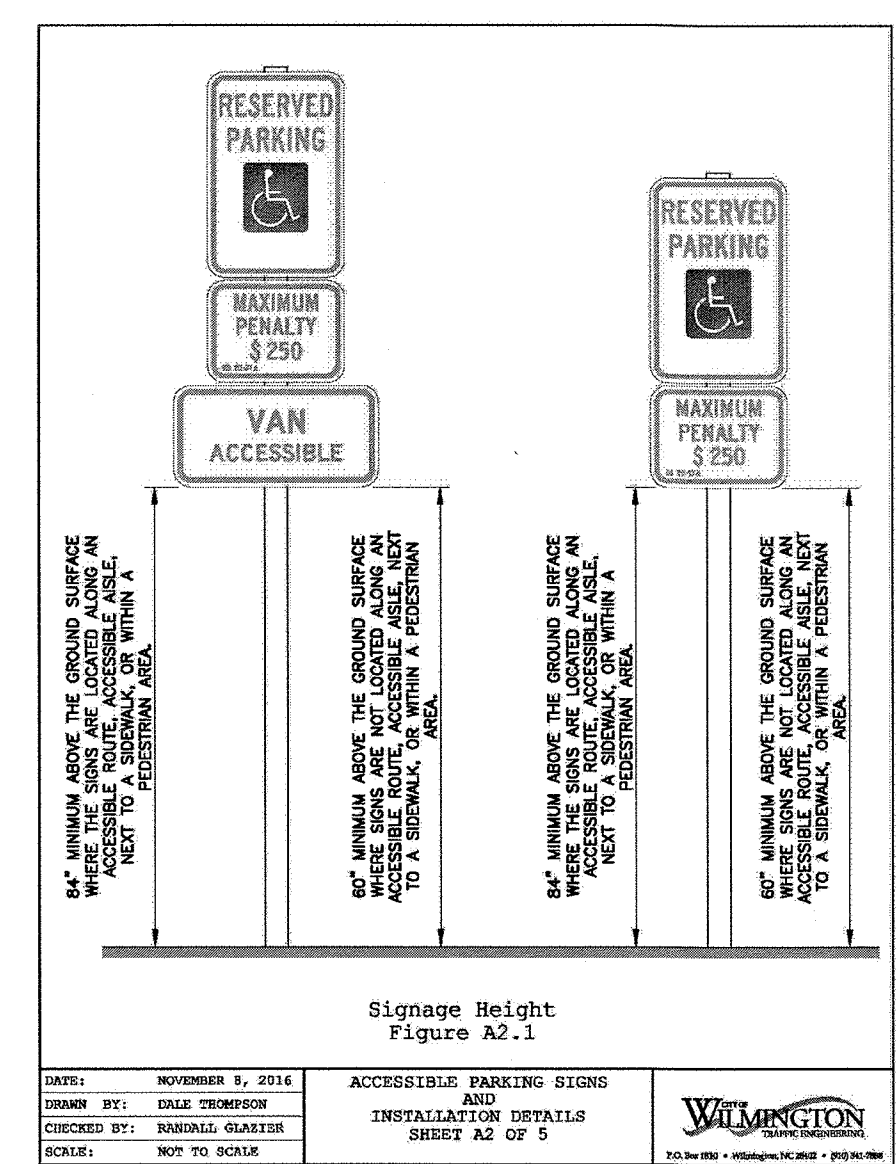
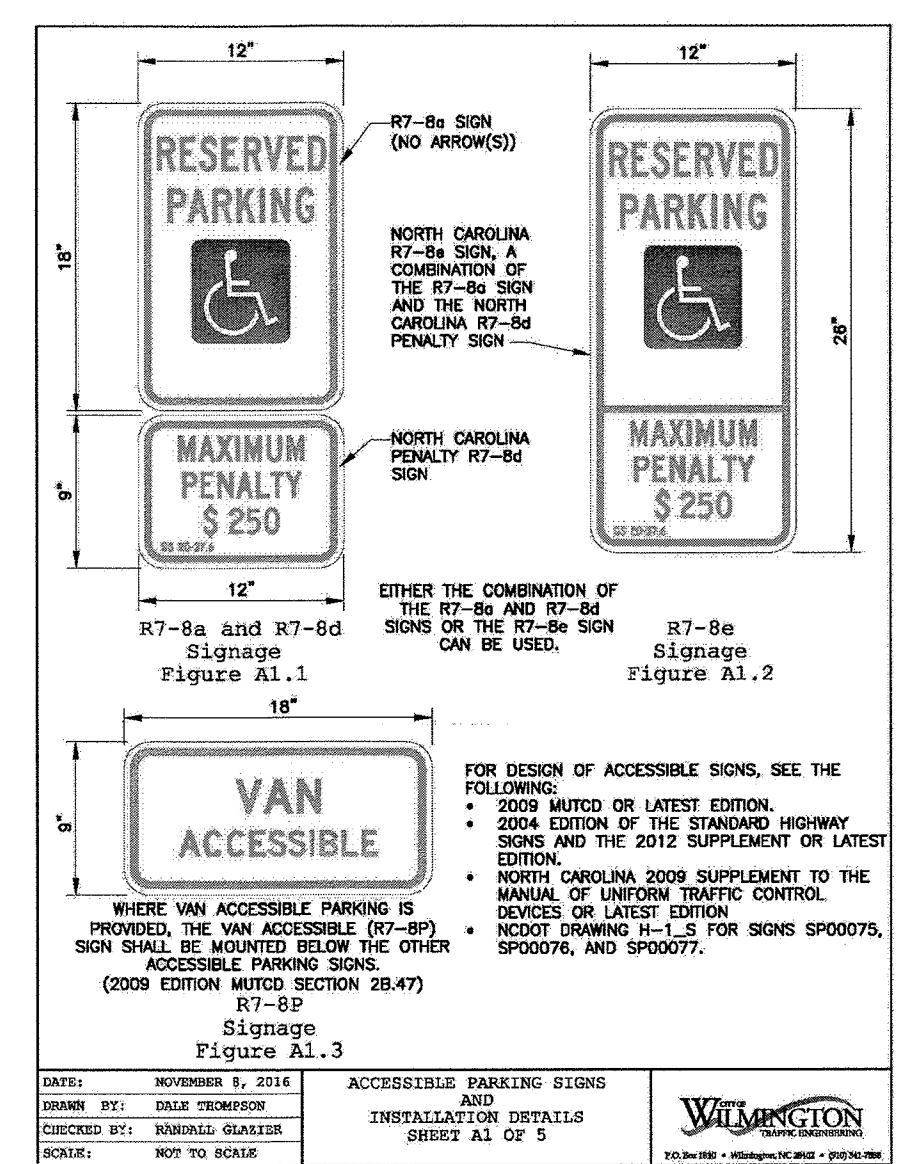
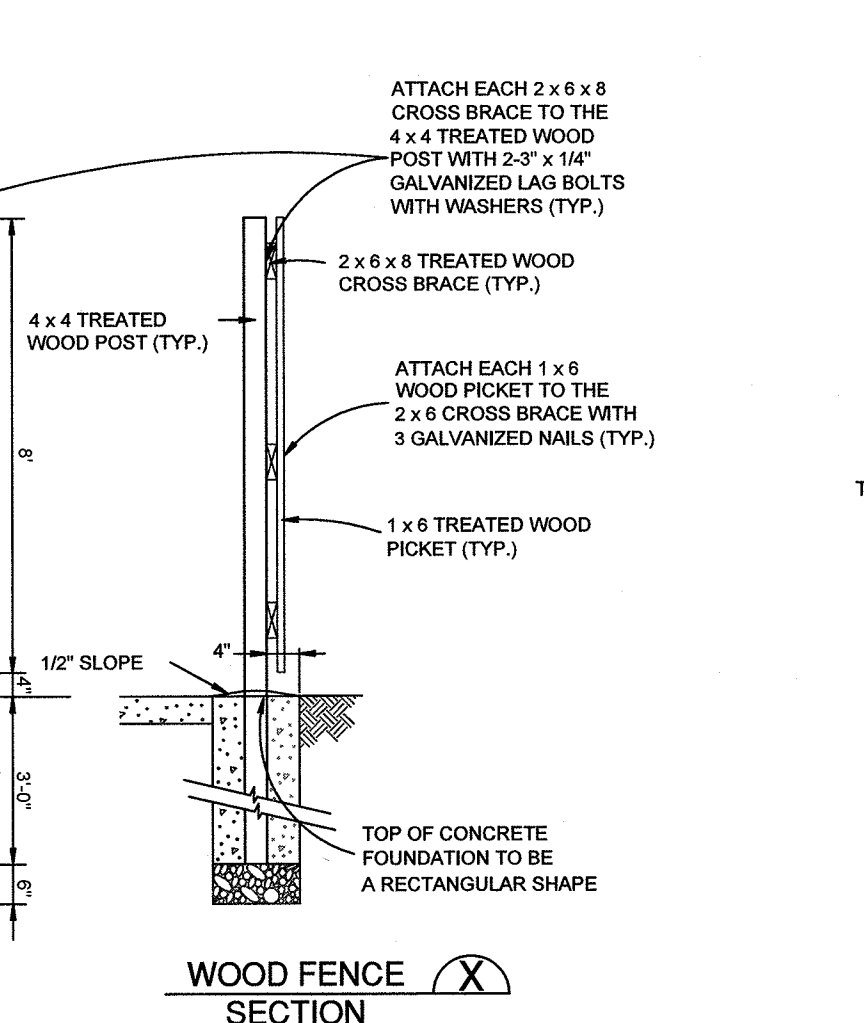
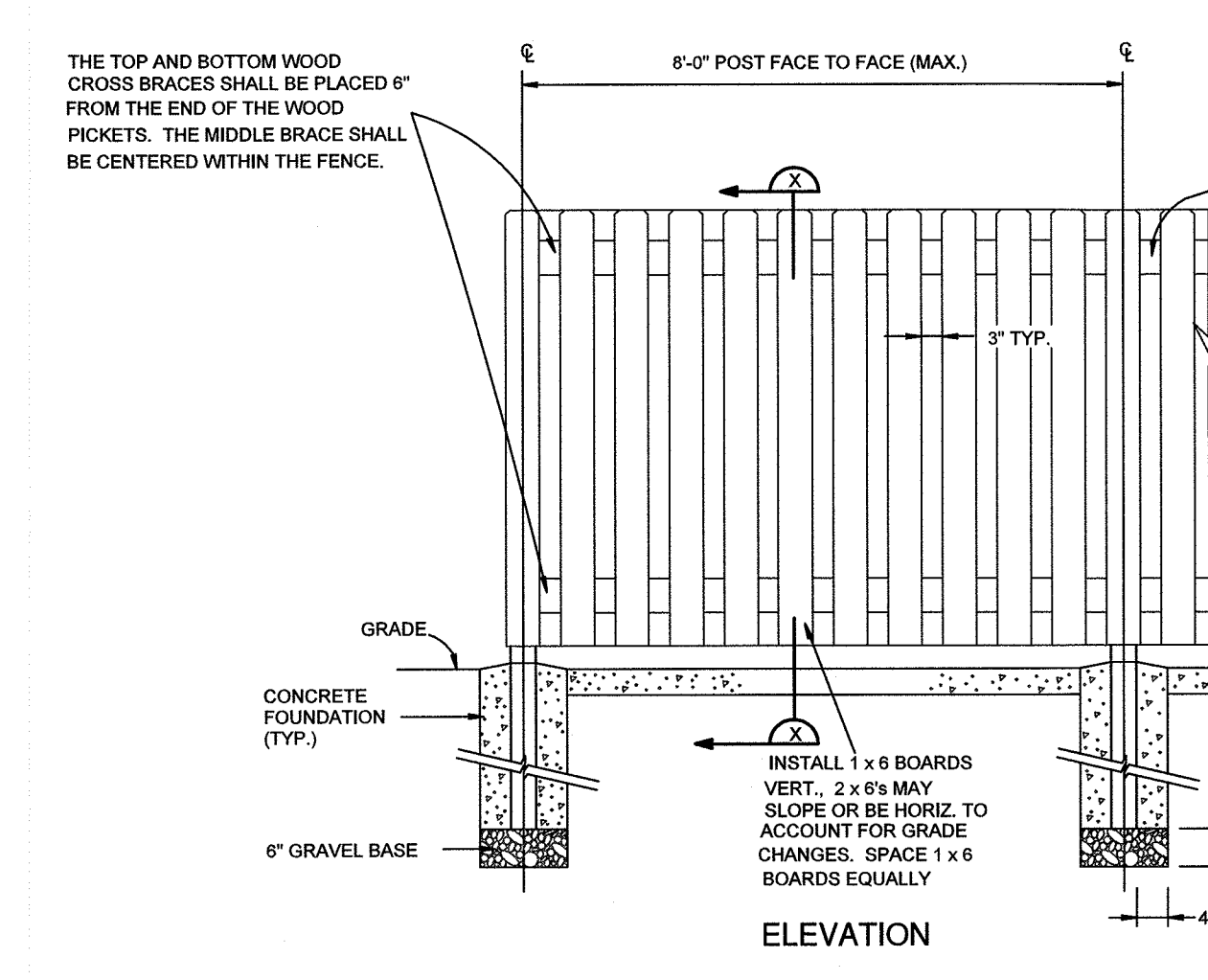
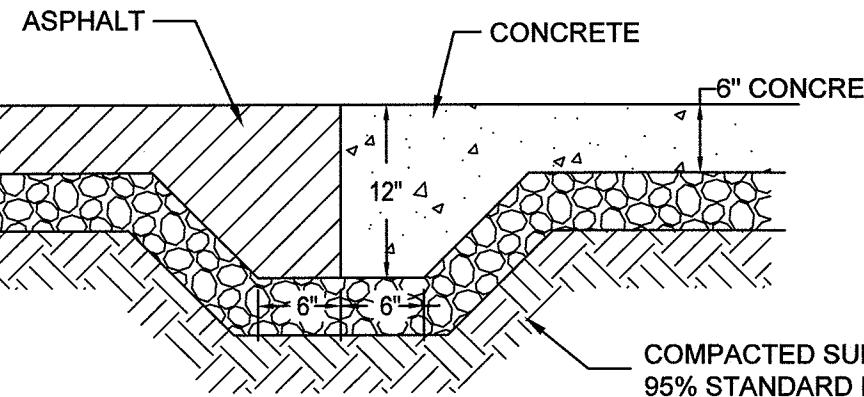
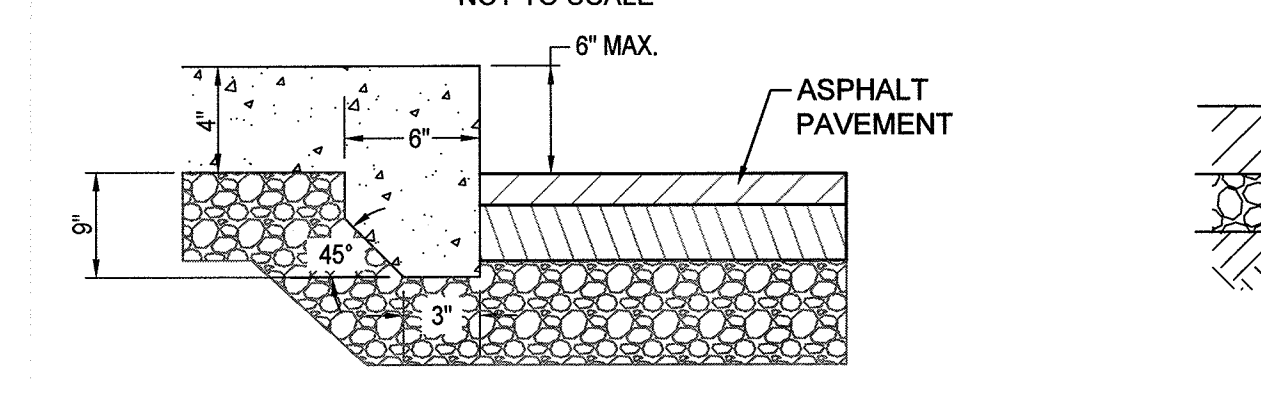
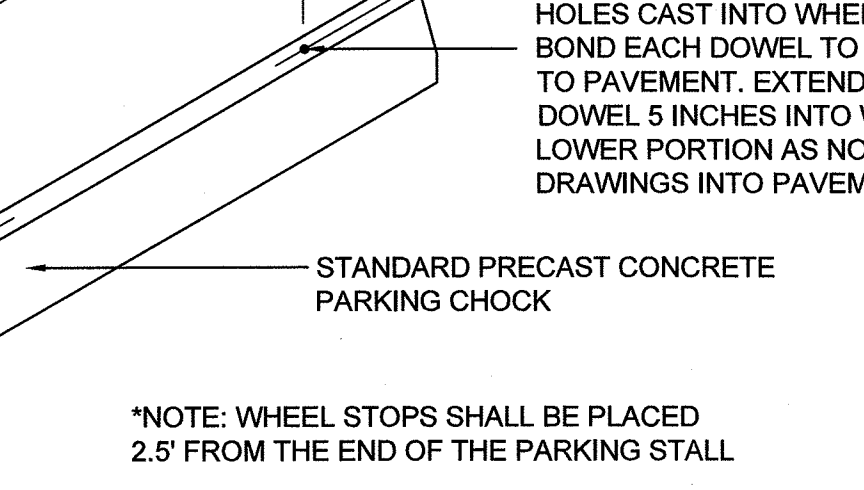
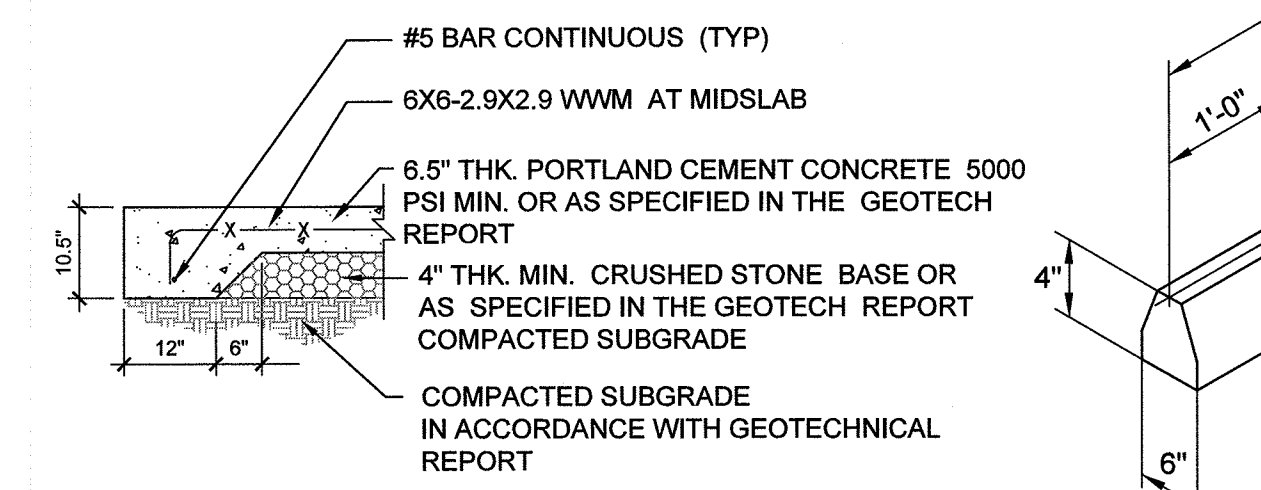
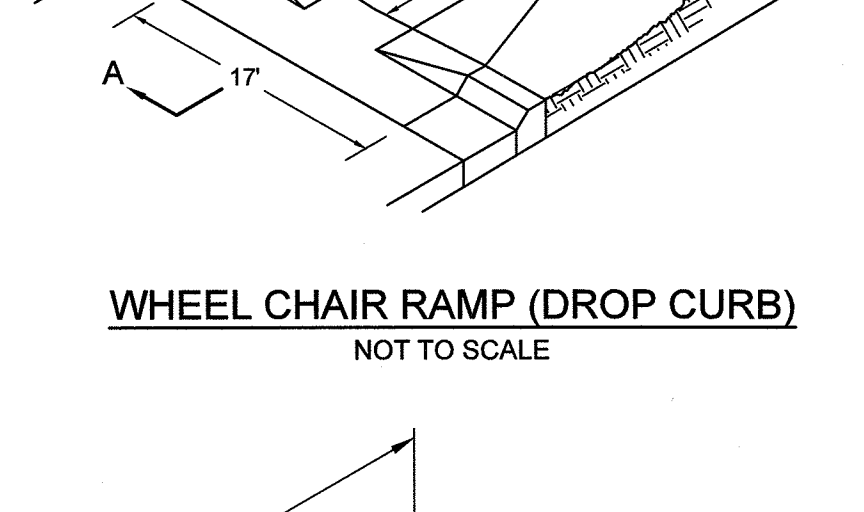
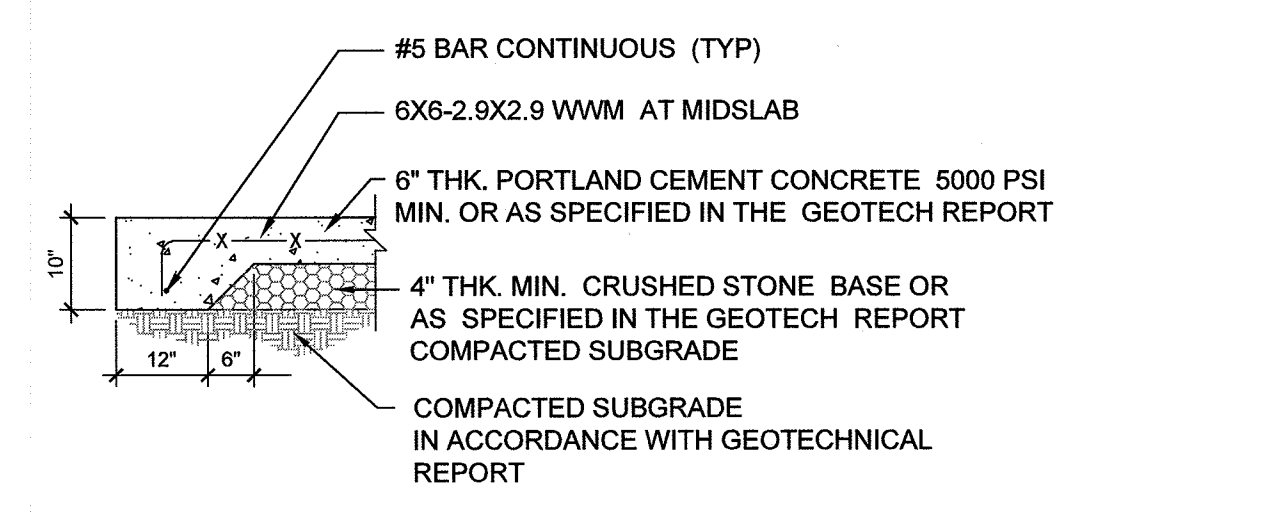
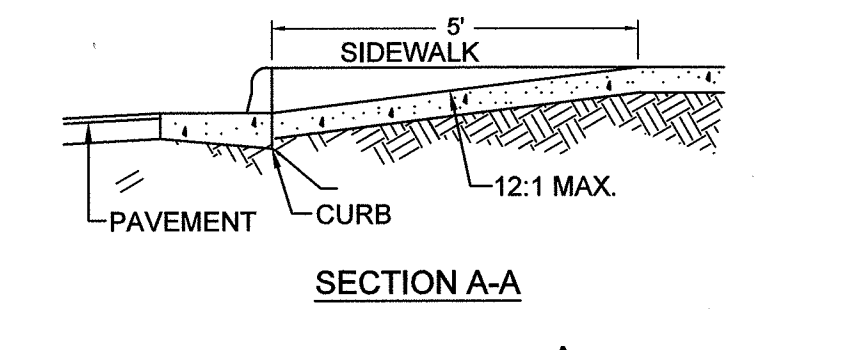
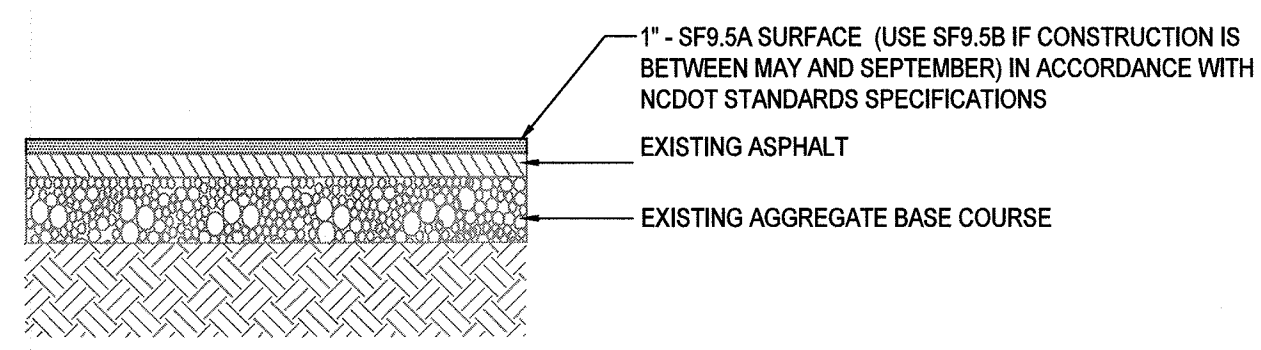
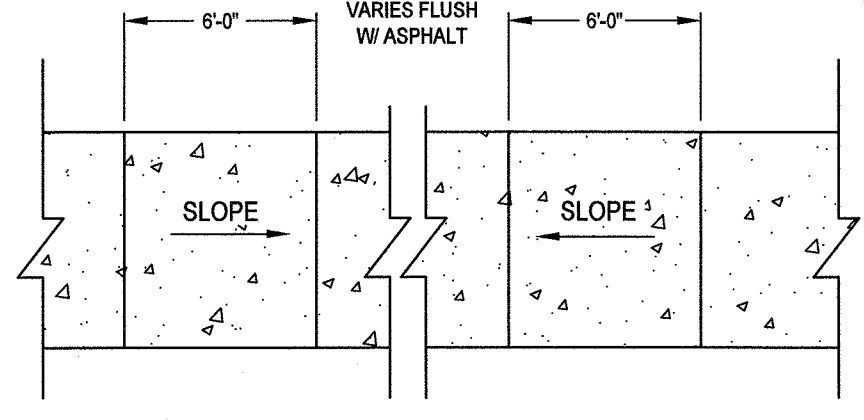
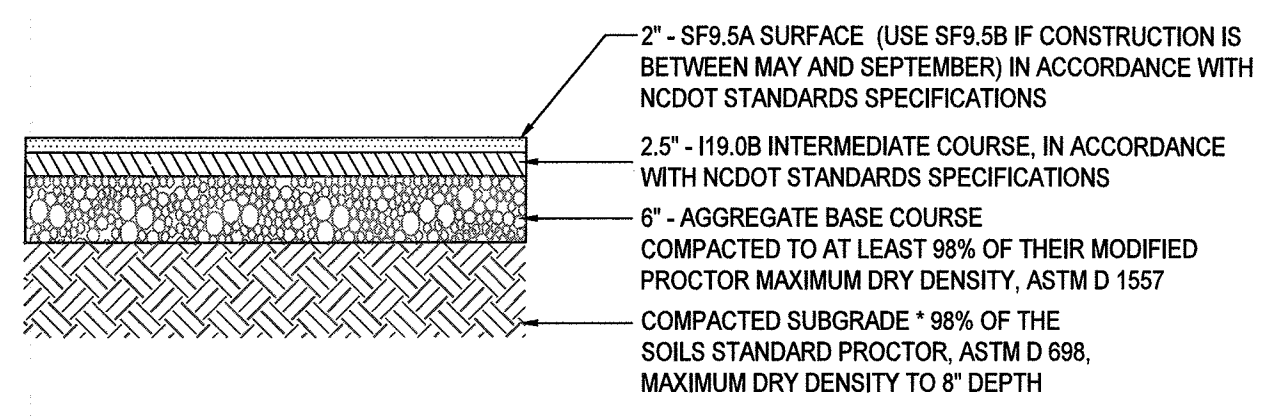
PROJECT STATUS:
 FINAL DESIGN: 06/20/18
 PRELIMINARY LAYOUT: 06/20/18
 RELEASED FOR CONSTRUCTION: 06/20/18

DRAWING INFORMATION:
 DATE: 06/20/18
 SCALE: 1"=30'
 DRAWN: RPB
 CHECKED: RPB

SEAL:
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 031591
 ENGINEER ROBERT P. BALLING
 06/20/18

RELEASED FOR CONSTRUCTION

C-4.1
 PEI JOB#: 17215.PE



NOTE !! - CONTRACTOR SHALL PROVIDE PHOTOGRAPHIC OR SIMILAR ACCEPTED EVIDENCE TO THE OWNER'S CONSTRUCTION MANAGER UPON COMPLETION OF STEEL PLACEMENT.

NOTES:
 1. FOOTINGS SHALL EXTEND 18" MINIMUM BELOW ADJACENT EXISTING GRADE BELOW FROST DEPTHS PER LOCAL CODES. SEE SOILS REPORT FOR ANY ADDITIONAL DESIGN CRITERIA.
 2. ENCLOSURE SHALL BE SHADOW BOX FENCE. SEE THIS SHEET FOR DETAILS.



REVISIONS:

CLIENT INFORMATION:
 BECKER MORGAN GROUP, INC.
 3205 RANDALL PKWY, #211
 WILMINGTON, NC 28403

PARAMOUNT ENGINEERING
 122 Cinema Drive
 Wilmington, North Carolina 28403
 (910) 791-6707 (O) (910) 791-6766 (F)
 NC License #: C-2846

DETAILS:
 ROLAND GRISE MIDDLE SCHOOL
 4412 LAKE AVENUE
 WILMINGTON, NORTH CAROLINA

PROJECT STATUS:
 CONCEPTUAL LAYOUT: 06/20/18
 PRELIMINARY LAYOUT: 06/20/18
 RELEASED FOR CONSTRUCTION: 06/20/18

DRAWING INFORMATION:
 DATE: 06/20/18
 DESIGNED: JIM
 DRAWN: JIM
 CHECKED: JIM

SEALED:
 PROFESSIONAL ENGINEER
 ROBERT HALL
 031591
 06/20/18

RELEASED FOR CONSTRUCTION

C-5.0
 PEI JOB#: 17215.PE

NOTE:
THE CRITICAL ROOT ZONE (CRZ) OF A TREE IS WHERE THE MAJORITY OF A TREE'S ROOTS LAY. 85% OF MOST TREE ROOTS ARE FOUND IN THE TOP 24" OF THE SOIL, AND SUPPLY THE MAJORITY OF NUTRIENTS AND WATER. GENERALLY, ROOTS SPREAD OUT 2-3X THE HEIGHT OF THE TREE.

NOTE:
CROWN OF THE TREE IS NEEDED FOR LEAF GROWTH TO PRODUCE OXYGEN, FILTER THE AIR, REDUCE WIND AND SOFTEN NOISE. DO NOT DISFIGURE CROWN WITH INTENSIVE PRUNING.

NOTE:
1. PROTECT CRITICAL ROOT ZONE (CRZ) OF TREES PRIOR TO CONSTRUCTION. CLEARLY MARK THE TREES AND ERECT A PROTECTIVE BARRIER AT THE CRZ. BARRIER SHALL BE MAINTAINED UNTIL CONSTRUCTION IS COMPLETE.
2. CRZ RADIUS IS 1 FT PER INCH OF TREE DIAMETER AT BREAST HEIGHT (DBH).
3. IF CONSTRUCTION OCCURS WITHIN THE CRZ, AT LEAST 12" OF MULCH AND/OR LOGGING MATS SHALL BE PLACED WHERE MACHINERY MANEUVERS TO REDUCE SOIL COMPACTION IN THIS ZONE.
4. WHERE SIDEWALKS AND PATHWAYS PASS WITHIN CRZ, EXTRA CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE ROOTS. ALTERNATE CONSTRUCTION METHODS, SUCH AS A REINFORCED SIDEWALK, SHALL BE IMPLEMENTED AS NECESSARY.
5. FOR ALL TREES, CUTTING OF LARGE STRUCTURAL ROOTS LOCATED NEAR THE BASE OF THE TRUNK IS PROHIBITED. DO NOT COMPACT SOIL BENEATH TREES. NO VEHICLE SHALL BE ALLOWED TO PARK UNDER TREES. NO MATERIALS OR EQUIPMENT SHALL BE STORED BENEATH TREES. DAMAGING THE BARK WITH LAWNMOWERS, CONSTRUCTION EQUIPMENT, OR ANYTHING ELSE IS PROHIBITED. CONTRACTOR SHALL REPAIR DAMAGE TO TREES.
6. FAILING TO INSTALL OR MAINTAIN PROTECTION MEASURES SHALL RESULT IN A STOP WORK ORDER AND FINE OF \$500/DAY. DISTURBANCE OTHER THAN THAT ALLOWED ON THE APPROVED PLAN WILL REQUIRE OWNER TO POST A LETTER OF CREDIT FOR 3 YRS FOR TREE MITIGATION.

DATE: JAN, 2015
DRAWN BY: JSR
CHECKED BY: RDG, P.E.
SCALE: NOT TO SCALE

STANDARD DETAIL
TREE PROTECTION DURING CONSTRUCTION
SHEET 1 of 2

CITY OF WILMINGTON
NORTH CAROLINA
CITY OF WILMINGTON ENGINEERING
PO BOX 1610
WILMINGTON, NC 28402
(910) 341-7907
SD 15-09

FRONT VIEW

NOTE:
1. THE TREE PROTECTION FENCING SHALL NOT BE VIOLATED FOR THE ENTIRE DURATION OF THE PROJECT WITHOUT APPROVAL FROM URBAN FORESTRY STAFF.
2. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL. LETTERS TO BE 3" HIGH, MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
3. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER. FOR TREE PROTECTION AREAS LESS THAN 100' IN PERIMETER, PROVIDE NO LESS THAN TWO SIGNS PER PROTECTION AREA.
4. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC. MAINTAIN TREE PROTECTION FENCE AND SIGNS THROUGHOUT DURATION OF PROJECT.
5. TREE PROTECTION FENCING AND SIGNAGE SHALL BE REMOVED AFTER CONSTRUCTION.
6. ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF WILMINGTON, BASED ON ACTUAL FIELD CONDITIONS.

DATE: JAN, 2015
DRAWN BY: JSR
CHECKED BY: RDG, P.E.
SCALE: NOT TO SCALE

STANDARD DETAIL
TREE PROTECTION DURING CONSTRUCTION
SHEET 2 of 2

CITY OF WILMINGTON
NORTH CAROLINA
CITY OF WILMINGTON ENGINEERING
PO BOX 1610
WILMINGTON, NC 28402
(910) 341-7907
SD 15-09

PLAN VIEW

SECTION VIEW

TEMPORARY CONSTRUCTION ENTRANCE
NOT TO SCALE

GUIDELINES FOR TEMPORARY SILT FENCE DETAIL
NOT TO SCALE

NOTES:
1. WIRE SHALL BE A MINIMUM OF 32" IN WIDTH AND SHALL HAVE A MINIMUM OF 8 LINE WIRES W/12" STAY SPACING
2. FILTER FABRIC SHALL BE A MINIMUM OF 36" IN WIDTH AND SHALL BE FASTENED ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER
3. STEEL POST SHALL BE 5" 0" IN HEIGHT AND BE OF SELF FASTENER ANGLE STEEL TYPE

DUMPSTER GATE - ELEVATION
NOT TO SCALE

CORRUGATED MTL PANEL GATES-PAINTED (COLOR SAMPLES TO BE SUBMITTED AND CHOSEN BY ARCHITECT)

GATE FRAME

TS 8"x8"x $\frac{3}{8}$ " BOLTED TO SHADOW BOX FENCING

$\frac{3}{4}$ " DOOR BOLTS; PROVIDE STEEL SLEEVES IN PAVING TO HOLD GATES OPEN AND CLOSE POSITION (TYP.)

PROVIDE WHEEL GUIDES BOTH DOOR LEAVES (TYP.)

CONCRETE FOOTING

DUMPSTER GATE - PLAN VIEW
NOT TO SCALE

CORRUGATED METAL PANEL GATES- PAINT TO MATCH WALL ADJACENT

PROVIDE SS CHAIN LINK THAT CAN ACCEPT PADLOCK

1/2" DIA ROUND BAR LOOPED TO 3" BELOW

1 3/4" X 1 3/4" X 3/16" STEEL ANGLE WELDED STEEL TUBE FRAME PAINTED TO MATCH CMU WALL

WEEPS @ 6" O.C.

8" X 8" X 3/16" STEEL TUBE COLUMN SUPPORT GROUT FILLED; PROVIDE CAP AND PAINT TO MATCH CMU WALL, SEE DETAIL A1.1

3" X 3" X 3/16" STEEL TUBE WELDED TO 8" STEEL TUBE COLUMN SUPPORT PAINTED TO MATCH CMU WALL

STEEL HINGE BY ANTECH CORP PRODUCT NO. 2001 PAINTED; FILLET WELD HINGE TO STEEL ANGLE AND STEEL TUBE FRAME

2 1/2" X 2 1/2" X 3/16" STEEL TUBE FRAMING PAINTED TO MATCH CMU WALL

SECTION A - A

NOTE:
1. FOR CURB INLETS AND DROP INLETS

INLET PROTECTION
NOT TO SCALE

FREE STANDING FIRE DEPARTMENT CONNECTION
NOT TO SCALE

NOTES:
1. THE VALVE FIT SHALL BE SIZED TO ACCOMMODATE ALL PROPOSED EQUIPMENT.
2. THERE SHALL BE NO SHUTOFF VALVE IN THE FIRE DEPT. CONNECTION PIPING (PER NFPA 13).
3. ALL FITTINGS SHALL BE FLANGED.
4. ALL PIPING SHALL BE STEEL OR DUCTILE IRON.
5. SEE SITE PLANS FOR SIZES OF PIPES AND FITTINGS. SIAMOSE CONNECTION TO BE IN ACCORDANCE WITH NFPA 13.
6. PROVIDE DRAINAGE AWAY FROM STRUCTURE.
7. A 2" MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN THE BOTTOM OF THE VAULT LID AND THE RISING STEM OF THE OSAY VALVE IN THE FULLY OPEN POSITION.
8. KNOX LOCKING PLUG SHALL BE PROVIDED ON THE FDC INLET
9. APPROVED WAFER CHECK OR SWING CHECK VALVE WITH HORIZONTAL MOUNTED BALL DRIP VALVE.
10. THE FDC SHALL BE CONNECTED TO THE PIPING SYSTEM LOCATED DOWNSTREAM OF THE POST INDICATOR VALVE.

CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division

Approved Construction Plan

Name: Michael Smith Date: 4/20/18

Planning: W. S. ... 6-2018

Traffic: R. ... 6-21-18

Fire: R. ... 6-21-18

Approved Stormwater Management Plan
Date: 6/21/18 Permit # 2018024

Signed: [Signature]

NCDENR PWSS WATER PERMIT # _____
WATER CAPACITY: _____ GPD

DWQ SEWER PERMIT # _____
SEWER CAPACITY: _____ GPD

SEWER SHED # AND PLANT: _____
SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)

REVISIONS:

CLIENT INFORMATION
BECKER MORGAN GROUP, INC.
3205 RAND ALL PKWY, #211
Wilmington, NC 28403

PARAMOUNT ENGINEERING, INC.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (C) (910) 791-6700 (F)
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DETAILS
ROLAND GRISE MIDDLE SCHOOL
4412 LAKE AVENUE
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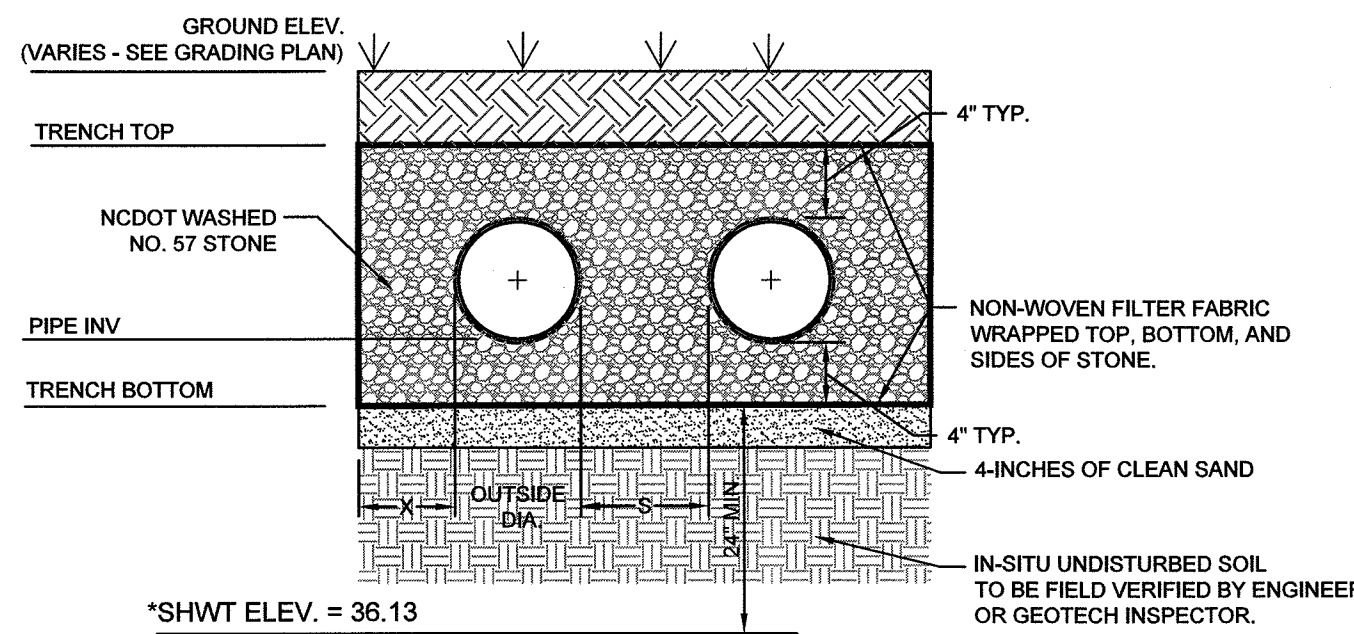
RELEASED FOR CONSTRUCTION

PROJECT STATUS:
CONCEPTUAL LAYOUT: 06/20/18
FINAL DESIGN: 06/20/18
RELEASED FOR CONST: 06/20/18

DRAWING INFORMATION:
DATE: 06/20/18
SCALE: RRB
DESIGNED: RRB
CHECKED: RRB

SEAL
ROBERT P. BALLANTINE
ENGINEER
031591
06/20/18

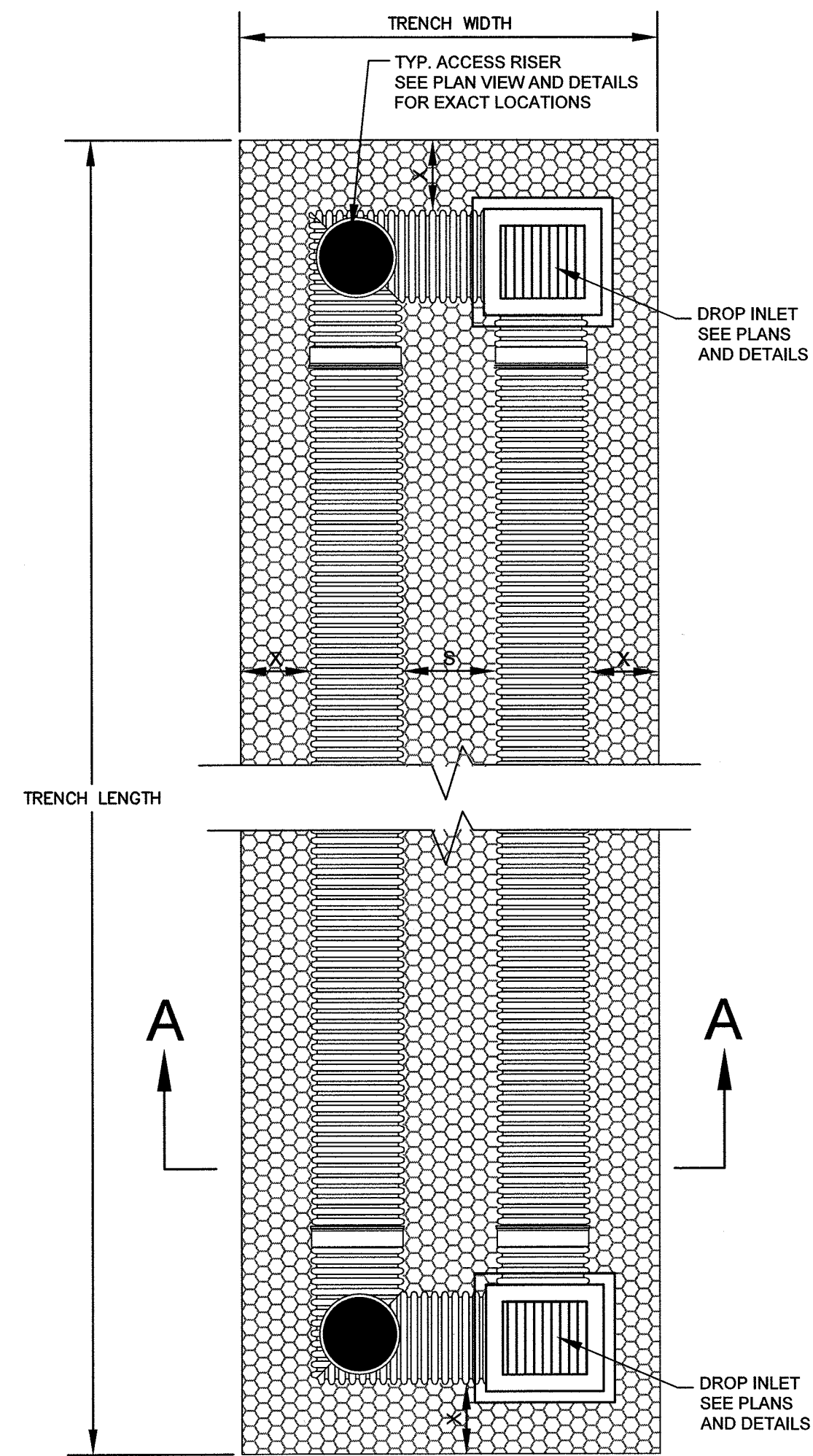
C-5.1
PEJ JOB#: 17215.PE



*SHWT ELEV. = 38.13

*TAKEN FROM S&ME SOILS FIELD TEST DATED 2/09/18.

SECTION A-A



DESIGN	INFILTRATION SYSTEM NO. 1
# OF RUNS	2
PIPE DIAMETER (IN)	18"
MIN. X (IN)	15"
MIN. S (IN)	18.0"
TRENCH WIDTH (FT)	7.50'
TRENCH LENGTH (FT)	222.50'
TRENCH BOTTOM ELEVATION	38.13
PIPE INVERT ELEVATION	38.59
TRENCH TOP ELEVATION	40.67
DROP INLET RIM ELEVATION	40.80

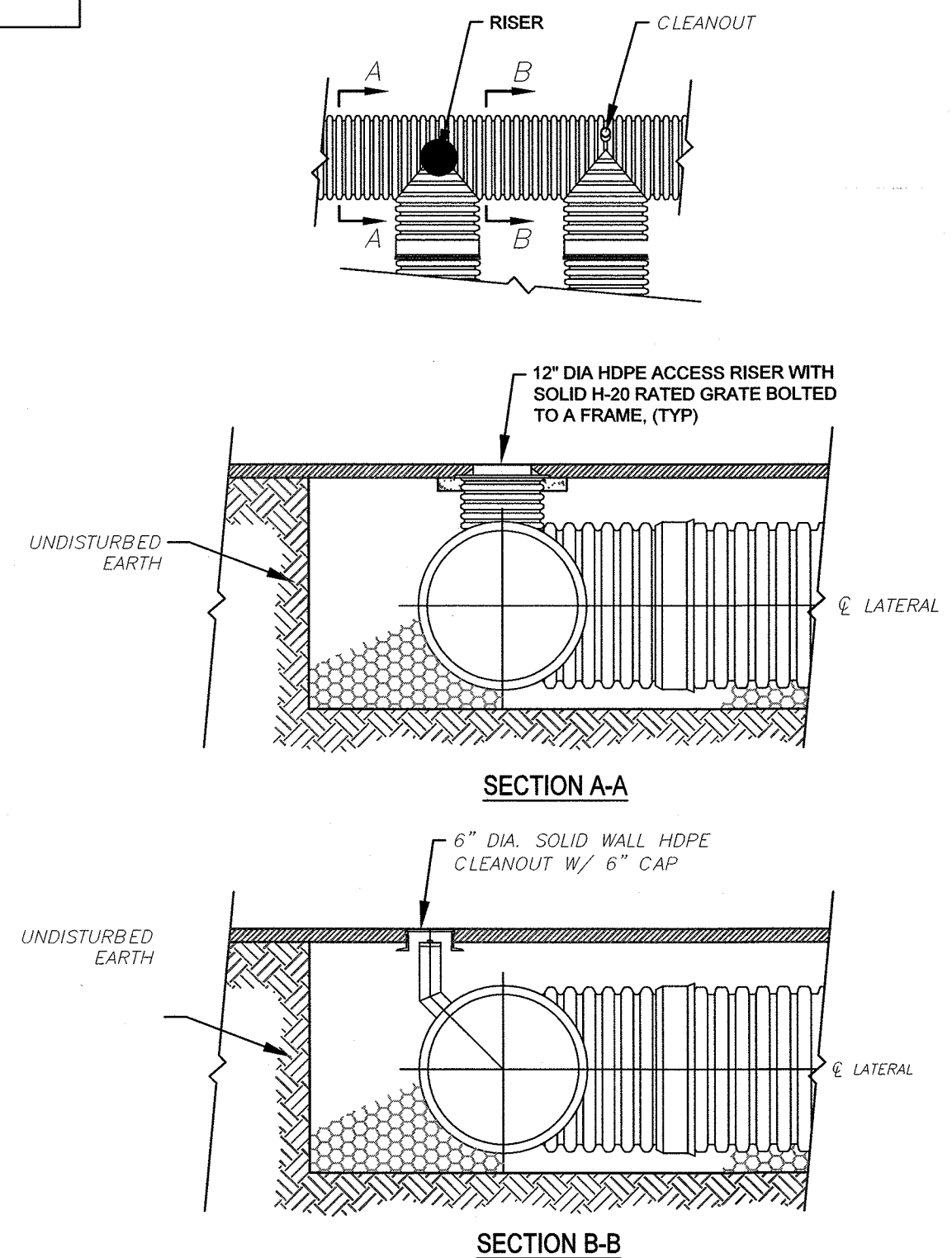
CONSTRUCTION NOTES:

- INFILTRATION TRENCH PIPE SHALL BE ADS N-12 WATER TIGHT (WT) PERFORATED HDPE PIPE MEETING AASHTO M252, M294, AND F2309, CLASS 2 PERFORATIONS (5/16" DIA), OR PERFORATED HDPE MEETING AASHTO CLASS 2, TYPE S PERFORATIONS. CONTRACTOR TO SUBMIT INFILTRATION TRENCH SHOP DRAWINGS FOR ENGINEER APPROVAL.
- HDPE PIPE TO BE INSTALLED PER ASTM & MANUFACTURER'S RECOMMENDATIONS. PIPE JOINTS TO BE WATER TIGHT.
- SEE TABLE FOR NUMBER OF PIPE RUNS AND DIMENSIONS.
- IT IS IMPORTANT THAT FILL MATERIAL FOR THE INFILTRATION TRENCHES SHALL BE SAME MATERIAL AS EXISTING SOILS UNDERLYING THE TRENCH. BE SURE NOT TO COMPACT THE SAND UNDER THE TRENCH SO THAT PROPER INFILTRATION RATES CAN OCCUR BELOW THE TRENCHES.
- THE PROPOSED INFILTRATION TRENCHES SHALL BEAR SOME SEDIMENT RUNOFF FROM THE SITE, BUT IT IS PRUDENT THAT SEDIMENT IS MINIMAL TO PROTECT THE FUNCTION OF THE INFILTRATION PIPES AND STONE. CONSIDER PAVING OR INSTALLING GRAVEL IMMEDIATELY UPON ROUGH GRADING FOR THE BUILDING PAD.
- THE ENGINEER RESERVES THE RIGHT TO REQUIRE A POST-INSTALLATION INFILTRATION EVALUATION BASED ON RAINFALL OR OTHER WATER SOURCE TO ENSURE THE TRENCH IS INFILTRATING PROPERLY BEFORE THE TRENCHES ARE BACKFILLED AND COVERED.

AS-BUILT SURVEY NOTE [15A NCAC 02H.1044]:

- THE CONTRACTOR WILL EMPLOY A LAND SURVEYOR LICENSED IN THE STATE OF NORTH CAROLINA TO PROVIDE ACCURATE REPRODUCIBLE AS-BUILT DRAWINGS OF THE INFILTRATION TRENCH SYSTEM, COLLECTION SYSTEM, AND IMPERVIOUS AREA ON THE SITE TO THE ENGINEER & OWNER UPON COMPLETION OF CONSTRUCTION. UPON CERTIFICATION BY THE ENGINEER AND VERIFICATION FROM THE OWNER ANY DISCREPANCIES WILL BE INDICATED, THEN THESE PLANS SHALL BE RETURNED TO THE CONTRACTOR FOR CORRECTION PRIOR TO FINAL PAYMENT AND FINAL INSPECTION.

TYPICAL INFILTRATION TRENCH SYSTEM
NOT TO SCALE



CLEANOUT/RISER ON INFILTRATION PIPE
NOT TO SCALE

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

ENGLISH STANDARD DRAWING FOR CONCRETE DROP INLET FOR 12" THRU 30" PIPE

CONTRACTOR SHALL PROVIDE A SUMP OF AT LEAST 6" FROM INV. OF PIPE TO BOTTOM OF STRUCTURE

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DIMENSIONS SHOWN.
OPTIONAL CONSTRUCTION: MONOLITHIC POUR 2" KEYWAY OR #4 BAR CORKELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.10.
CONSTRUCT WITH PIPE GROWING MATCHING.
SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
INSTALL 2" REINFORCING AS DIRECTED BY THE ENGINEER.
INSTALL STONE GRATES OF A MINIMUM OF 1 CUBIC FOOT OF NO. 20M STONE IN A FORMED FABRIC AND ON SUMP. AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

SHEET 1 OF 1
840.14

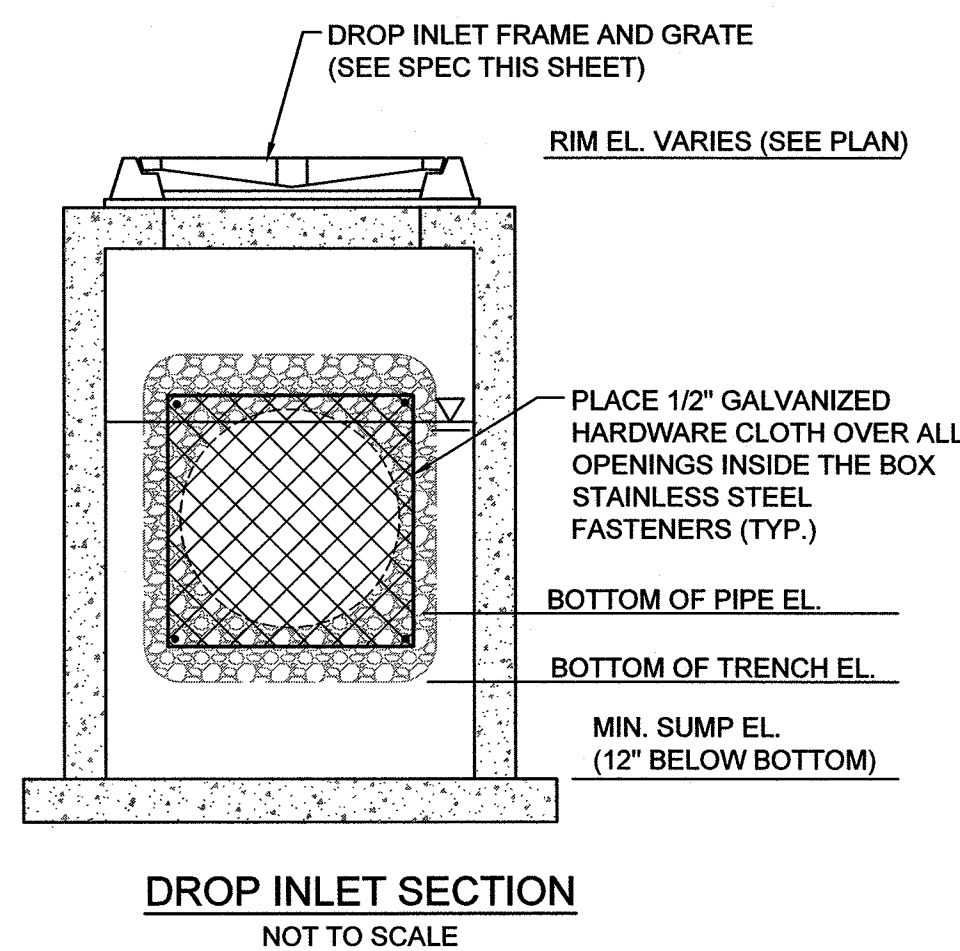
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

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

CONTRACTOR SHALL PROVIDE A SUMP OF AT LEAST 6" FROM INV. OF PIPE TO BOTTOM OF STRUCTURE

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DIMENSIONS SHOWN.
OPTIONAL CONSTRUCTION: MONOLITHIC POUR 2" KEYWAY OR #4 BAR CORKELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.10.
CONSTRUCT WITH PIPE GROWING MATCHING.
SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
INSTALL 2" REINFORCING AS DIRECTED BY THE ENGINEER.
INSTALL STONE GRATES OF A MINIMUM OF 1 CUBIC FOOT OF NO. 20M STONE IN A FORMED FABRIC AND ON SUMP. AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

SHEET 1 OF 1
840.15



DROP INLET SECTION
NOT TO SCALE

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

ENGLISH STANDARD DRAWING FOR COMMERCIAL DRIVEWAY SECTIONS (VERTICAL CURB)

CONTRACTOR SHALL PROVIDE A SUMP OF AT LEAST 6" FROM INV. OF PIPE TO BOTTOM OF STRUCTURE

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DIMENSIONS SHOWN.
OPTIONAL CONSTRUCTION: MONOLITHIC POUR 2" KEYWAY OR #4 BAR CORKELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.10.
CONSTRUCT WITH PIPE GROWING MATCHING.
SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
INSTALL 2" REINFORCING AS DIRECTED BY THE ENGINEER.
INSTALL STONE GRATES OF A MINIMUM OF 1 CUBIC FOOT OF NO. 20M STONE IN A FORMED FABRIC AND ON SUMP. AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

SHEET 1 OF 1
840.14

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

ENGLISH STANDARD DRAWING FOR COMMERCIAL DRIVEWAY SECTIONS (VERTICAL CURB)

CONTRACTOR SHALL PROVIDE A SUMP OF AT LEAST 6" FROM INV. OF PIPE TO BOTTOM OF STRUCTURE

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DIMENSIONS SHOWN.
OPTIONAL CONSTRUCTION: MONOLITHIC POUR 2" KEYWAY OR #4 BAR CORKELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.10.
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INSTALL 2" REINFORCING AS DIRECTED BY THE ENGINEER.
INSTALL STONE GRATES OF A MINIMUM OF 1 CUBIC FOOT OF NO. 20M STONE IN A FORMED FABRIC AND ON SUMP. AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

SHEET 1 OF 1
840.15

CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: 6/21/18 Permit # 2018024

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

Approved Construction Plan

Name: Nicole D Smith Date: 6/20/18

Planning: Nicole D Smith

Traffic: W. Edwards

Fire: B.J. Boyd

Signed: [Signature]

NC DENR PWSS WATER PERMIT #:

WATER CAPACITY: _____ GPD

DWQ SEWER PERMIT #:

SEWER CAPACITY: _____ GPD

SEWER SHED # AND PLANT:

SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)

RELEASED FOR CONSTRUCTION

REVISIONS:

CLIENT INFORMATION:

PARAMOUNT ENGINEERING, INC.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

DETAILS

ROLAND GRISE MIDDLE SCHOOL
4412 LAKE AVENUE
WILMINGTON, NORTH CAROLINA

PROJECT STATUS:
CONTRACT/LAYOUT: 06/20/18
FINAL DESIGN: 06/20/18
RELEASED FOR CONSTRUCTION: 06/20/18

DRAWING INFORMATION:
DATE: 06/20/18
SCALE: N.T.S.
DRAWN: RBB
CHECKED: RBB

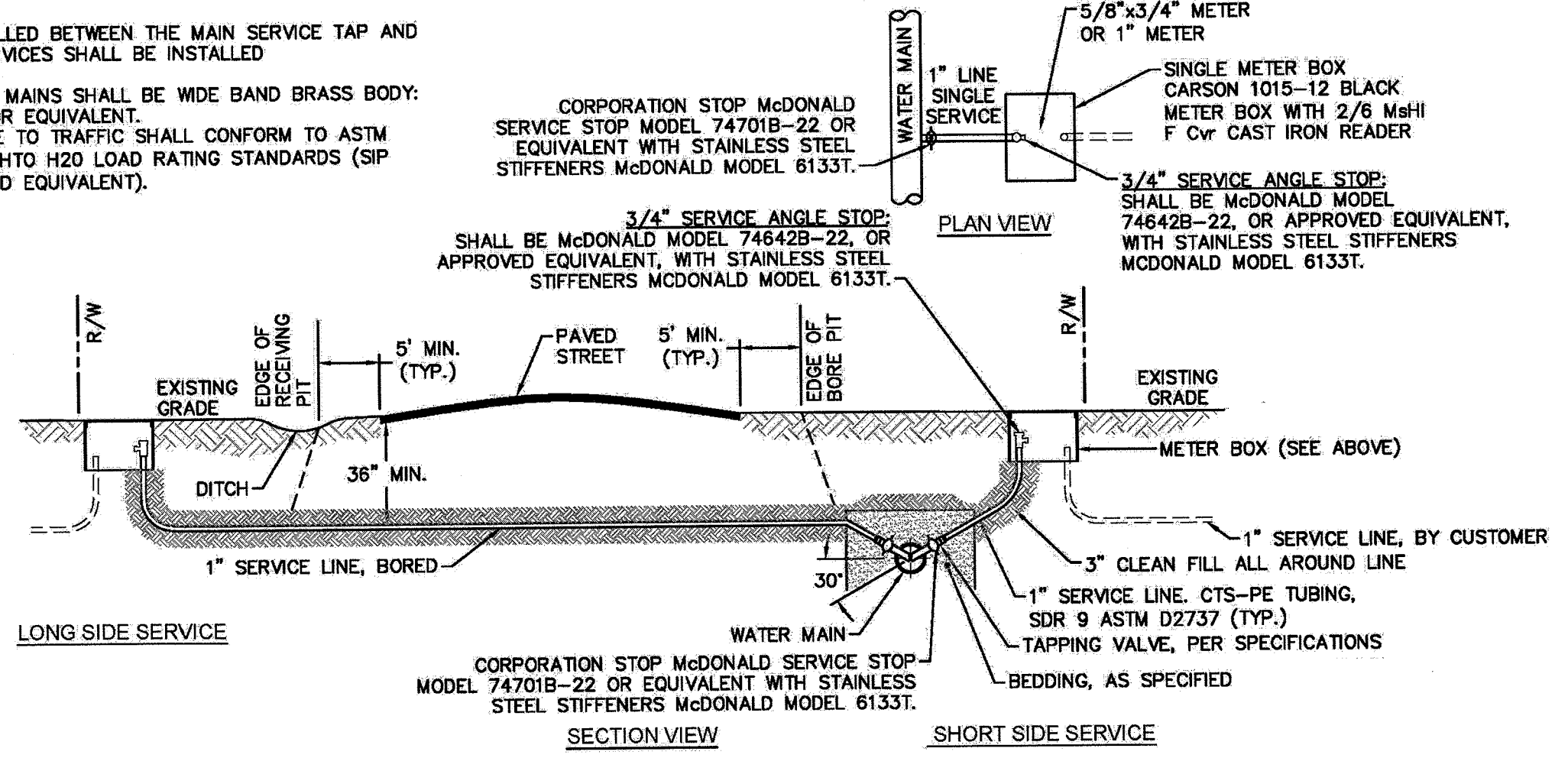
PROFESSIONAL SEAL:
ROBERT P. BALLING
ENGINEER
031591
06/20/18

C-5.2

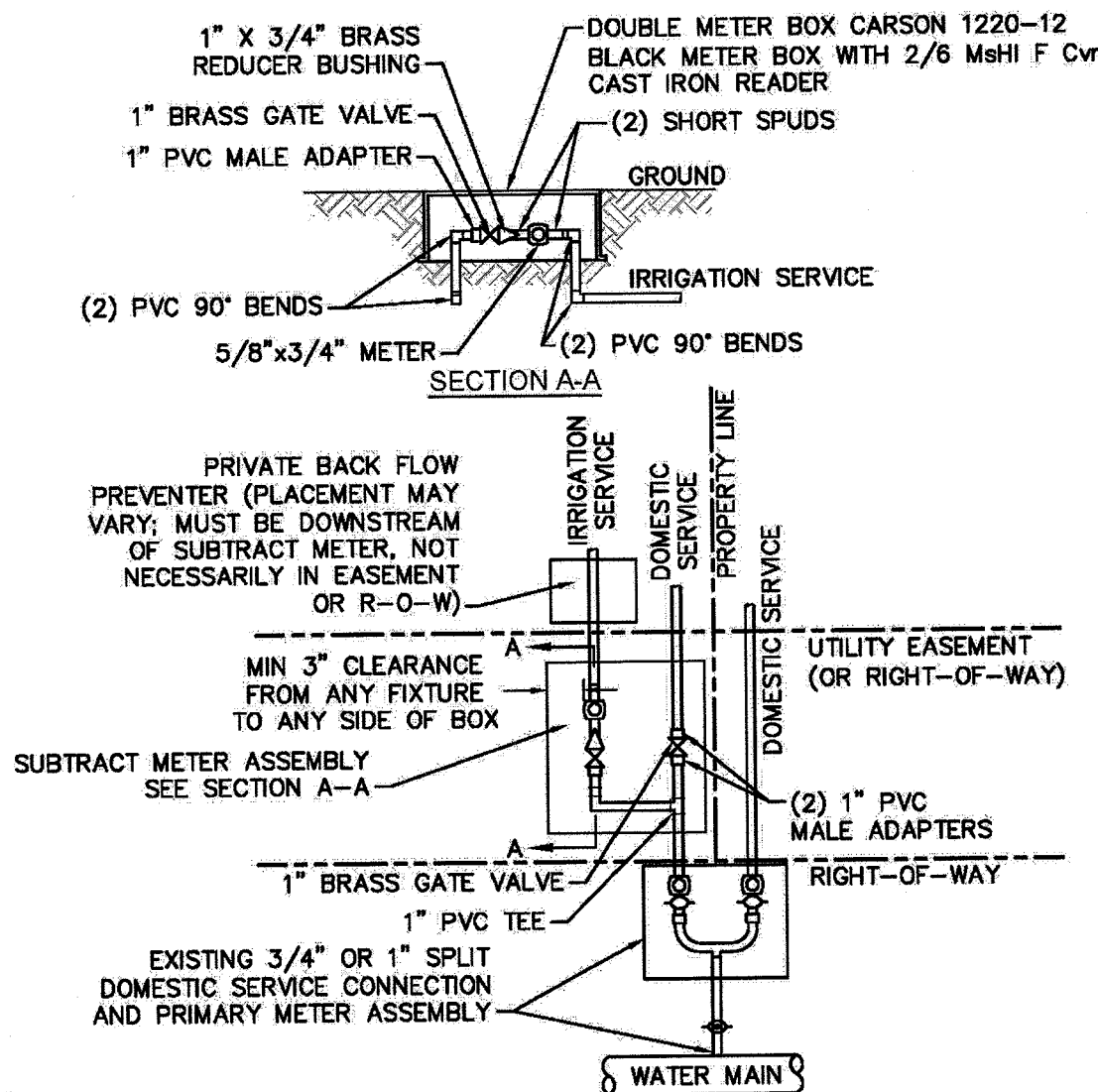
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NOTES:

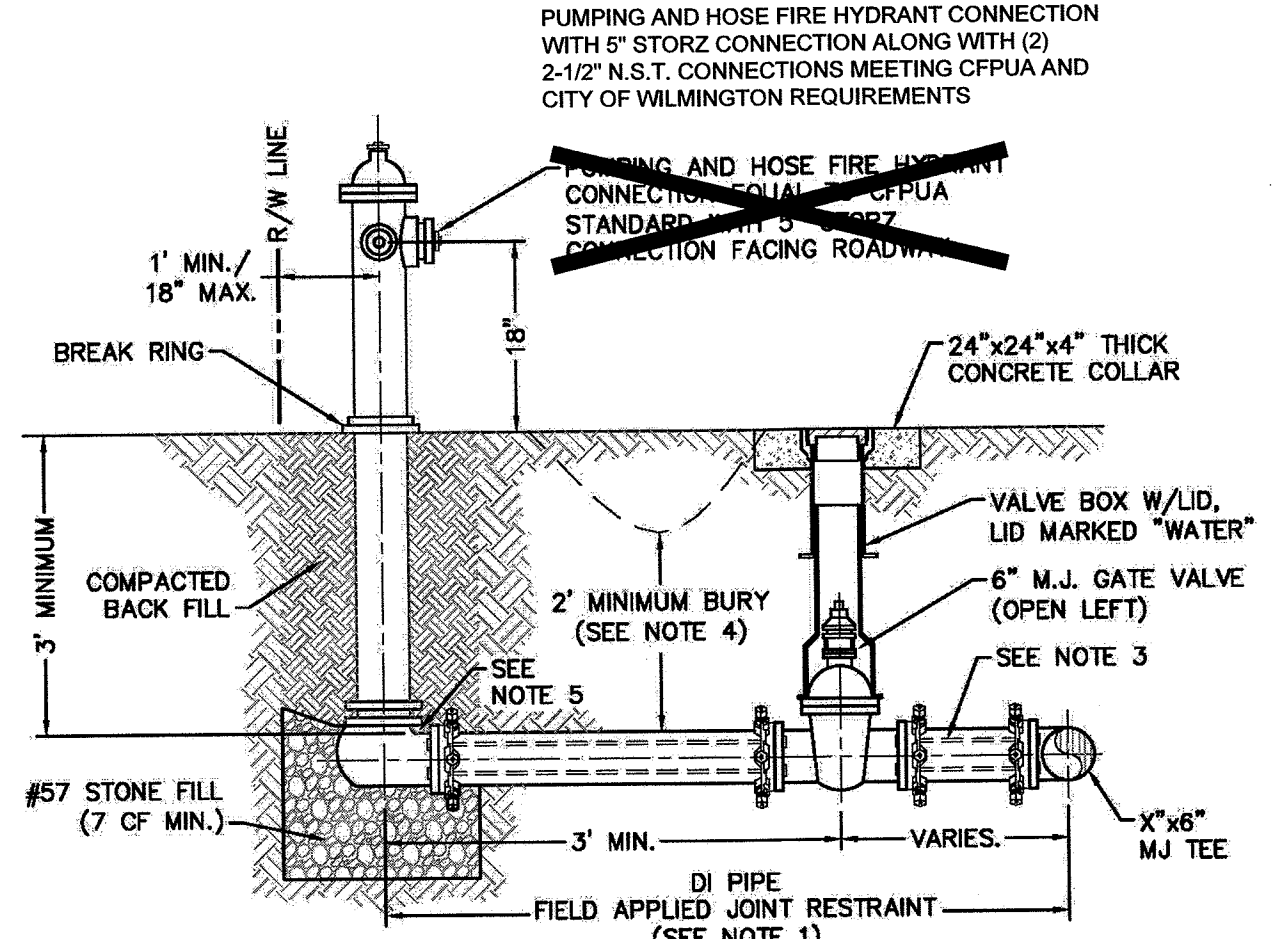
- NO JOINT SHALL BE INSTALLED BETWEEN THE MAIN SERVICE TAP AND THE METER STOP. ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
- SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY: SADDLE McDONALD 3801 OR EQUIVALENT.
- METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ASTM A48, CLASS 30B AND AASHTO H20 LOAD RATING STANDARDS (SIP MODEL 4242, OR APPROVED EQUIVALENT).



WD-18 SINGLE SERVICE CONNECTION
NOT TO SCALE



WD-8 DOUBLE SERVICE CONNECTION USING SUBTRACT METER
NOT TO SCALE



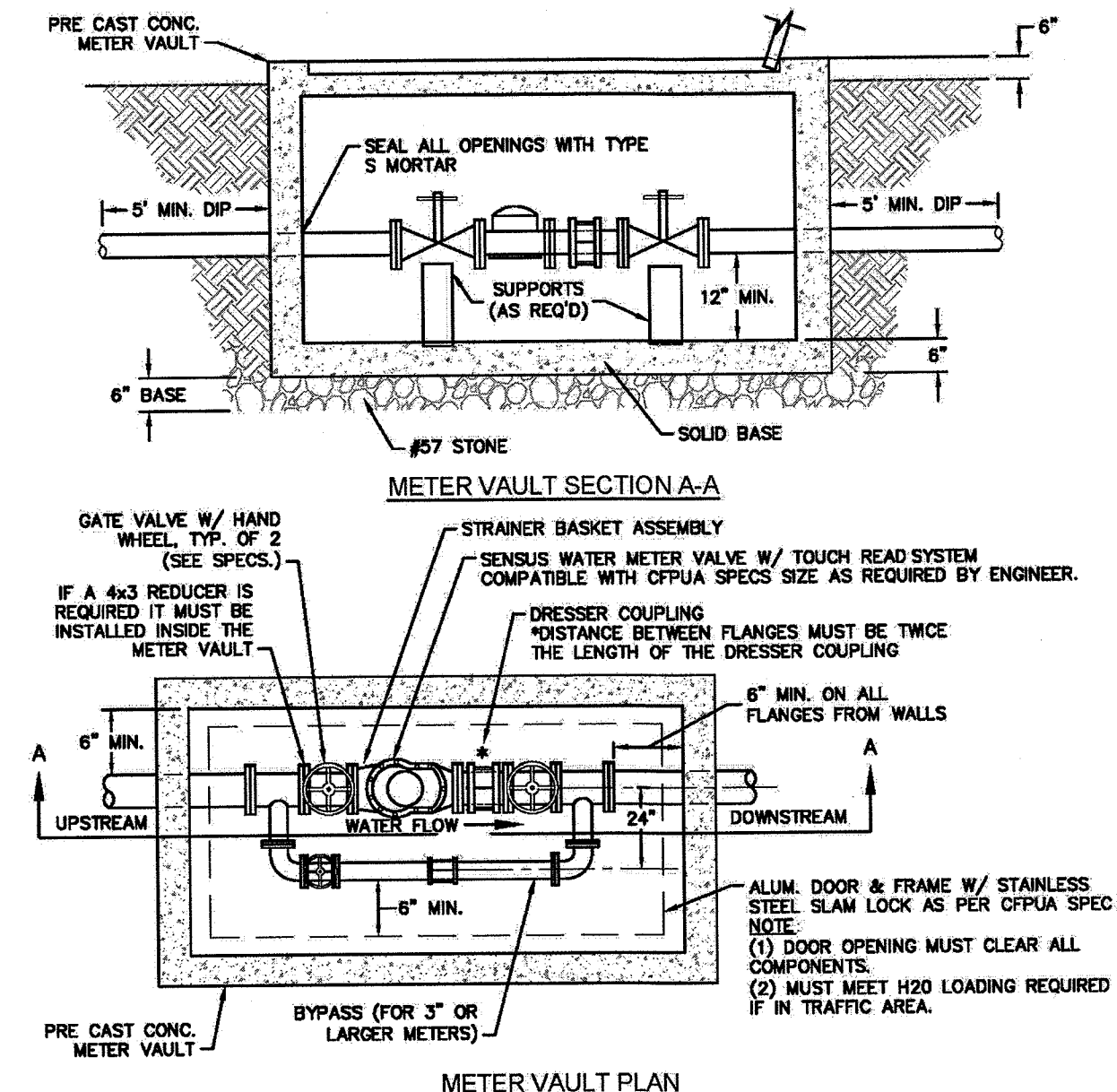
WD-10 FIRE HYDRANT ASSEMBLY
NOT TO SCALE

- NOTES:**
- JOINT RESTRAINT SYSTEMS SHALL BE WEDGE ACTION STYLE FOR DI PIPE AS MANUFACTURED BY EBAA IRON, SIGMA, STAR PIPE PRODUCTS OR APPROVED EQUAL.
 - WHEN HYDRANT LEGS REQUIRE FULL LENGTH PIPE SECTIONS, OVER BELL RESTRAINT SYSTEM SHALL HAVE 316 STAINLESS STEEL HARNESS AND FASTENERS.
 - CONTINUOUS 316 STAINLESS STEEL RODS (TEE TO VALVE AND VALVE TO HYDRANT) MAY BE USED WITH COR-BLUE MJ T-BOLT AND GASKET KITS, AS AN ALTERNATIVE.
 - HYDRANT AND VALVE SHALL BE PLACED OUTSIDE DITCH LIMITS.
 - WEEP HOLES OPEN AND UNBLOCKED TO DRAIN.

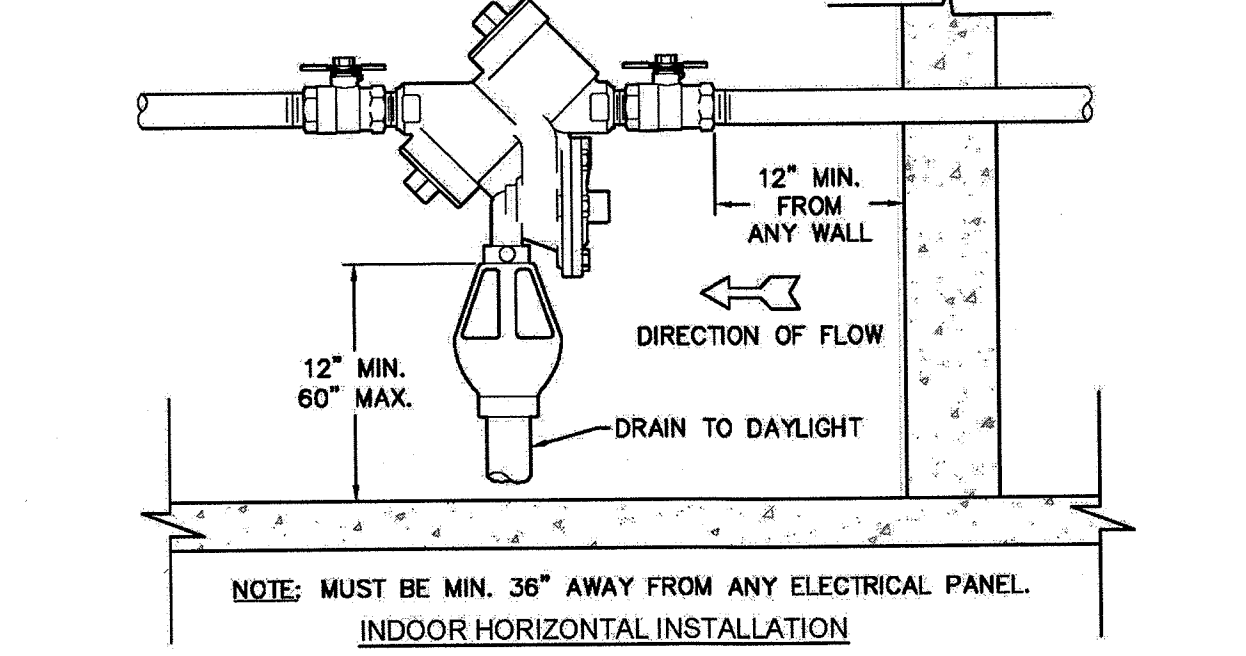
CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD NOTES:

- SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
- WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT RIGHT-OF-WAY LINE. SEWER SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN END OF LINE MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
- ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
- MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
- NO FLEXIBLE COUPLINGS SHALL BE USED.
- ALL STAINLESS STEEL FASTENERS SHALL BE 316.
- CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.

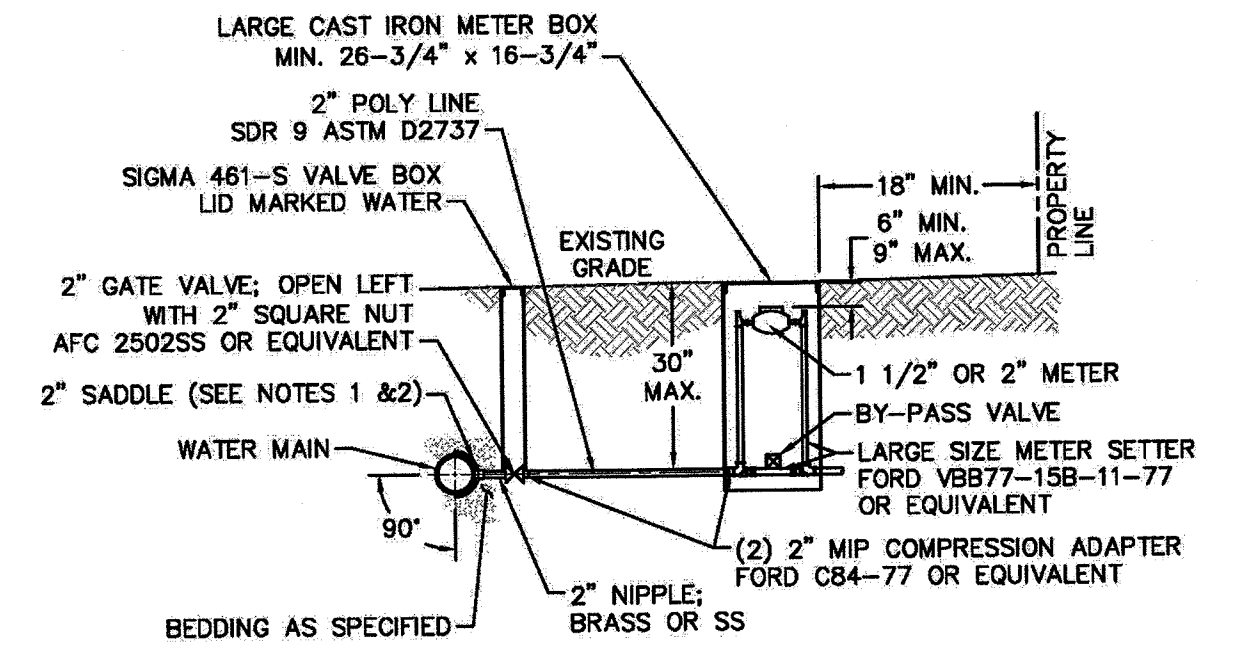
WD-19 STANDARD NOTES
(REQUIRED ON ALL PLAN AND PROFILE SHEETS)



WD-11 LARGE METER
NOT TO SCALE



WD-12 REDUCED PRESSURE PRINCIPLE ASSEMBLY
NOT TO SCALE



WD-7 DOUBLE CHECK VALVE ASSEMBLY
NOT TO SCALE

- NOTES:**
- ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
 - SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY: McDONALD 3800, FORD S90 (DOUBLE STRAP) OR EQUIVALENT.
 - METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ASTM A48, CLASS 30B AND AASHTO H20 LOAD RATING STANDARDS (OLDCASTLE PRECAST MODEL B1730 OR APPROVED EQUIVALENT).
 - METER BOXES SUSCEPTIBLE TO INCIDENTAL, NON-DELIBERATE TRAFFIC SHALL CONFORM TO ANSI/SCTE 77 TIER 15 LOAD RATING STANDARDS (SYNERTECH MODEL DUO 17x30 OR APPROVED EQUIVALENT).
 - NON-TRAFFIC METER BOXES SHALL BE SIGMA MB2203 OR APPROVED EQUIVALENT.
 - 3" CLEAN FILL REQUIRED ALL AROUND 2" POLY SERVICE LINE.

- GENERAL NOTES:**
- NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
 - THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
 - THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
 - THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
 - THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN AND STOCKPILE AREAS (TO ARRANGE AND ENSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

REV.	DESCRIPTION:	DATE:
1	Single Service Connection, Double Service Connection, and Large Meter Revised	10/26/12
2	Single Service Connection and Fire Hydrant Details Revised	7/23/13
3	Fire Hydrant Detail Revised	01/03/14
4	Revised Fire Hydrant Assembly To Show 5" STORZ Connection	04/10/15
5	Revised Fire Hydrant Assembly To Show Full Dip Hydrant Leg	01/19/16
6	Revised Water Meter Vault and Large Meter Details, Added Standard Notes	02/15/16

CFPUA WATER DISTRIBUTION SYSTEM

STANDARD DETAILS

DATE: 1/8/12
SCALE: N/A
DRAWN BY: CFPUA
CHECKED BY: CFPUA
PROJECT NO.:
SHEET NO.: **WSD-1**

CAPE FEAR PUBLIC UTILITY AUTHORITY
235 GOVERNMENT CENTER DRIVE
WILMINGTON, NC 28403
OFFICE: (910)332-6560

WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: 6/21/18 Permit # 2018024
Signed: [Signature]

Approved Construction Plan
Name: [Name] Date: 6/20/18
Planning: [Signature] 6-20-18
Traffic: [Signature] 6-20-18
Fire: [Signature] 6-21-18

NC DENR PWSS WATER PERMIT #:
WATER CAPACITY: _____ GPD
DWG SEWER PERMIT #:
SEWER CAPACITY: _____ GPD
SEWER SHED # AND PLAN:
SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)

REVISIONS:

CLIENT INFORMATION:
PARAMOUNT ENGINEERING

BECKER MORGAN GROUP, INC.
3205 RANDALL PKWY, #211
Wilmington, NC 28403

122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

DETAILS
ROLAND GRISE MIDDLE SCHOOL
4412 LAKE AVENUE
WILMINGTON, NORTH CAROLINA

RELEASED FOR CONSTRUCTION

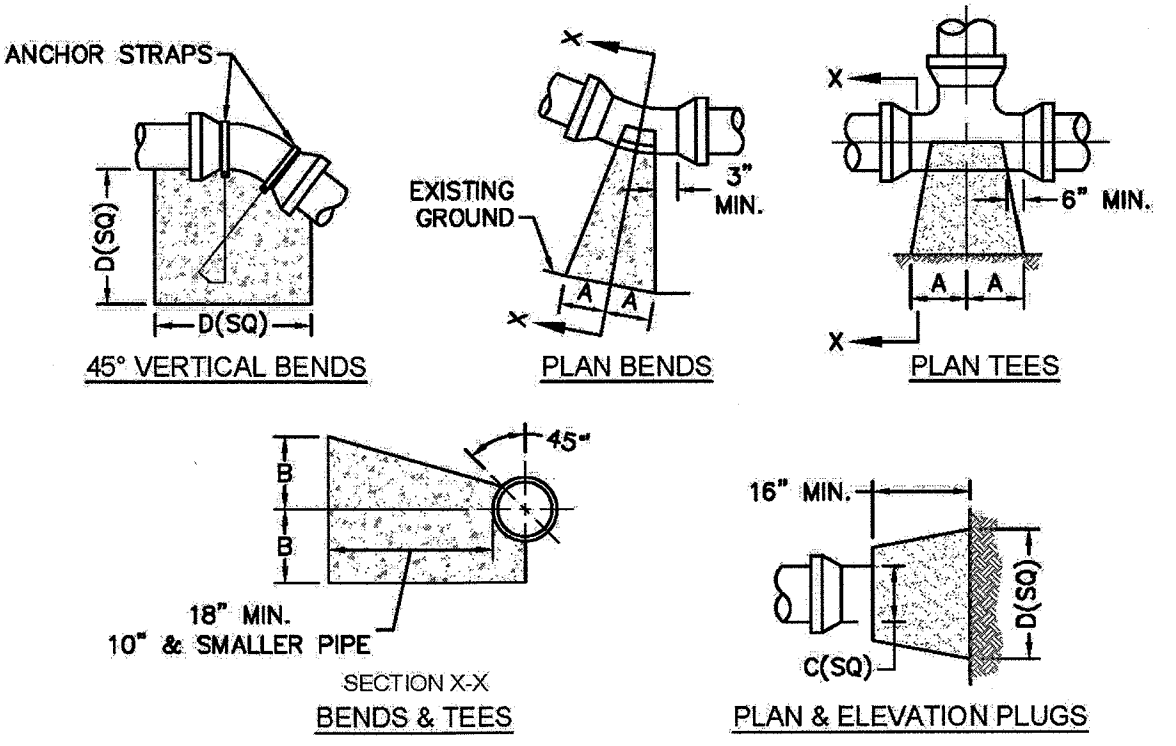
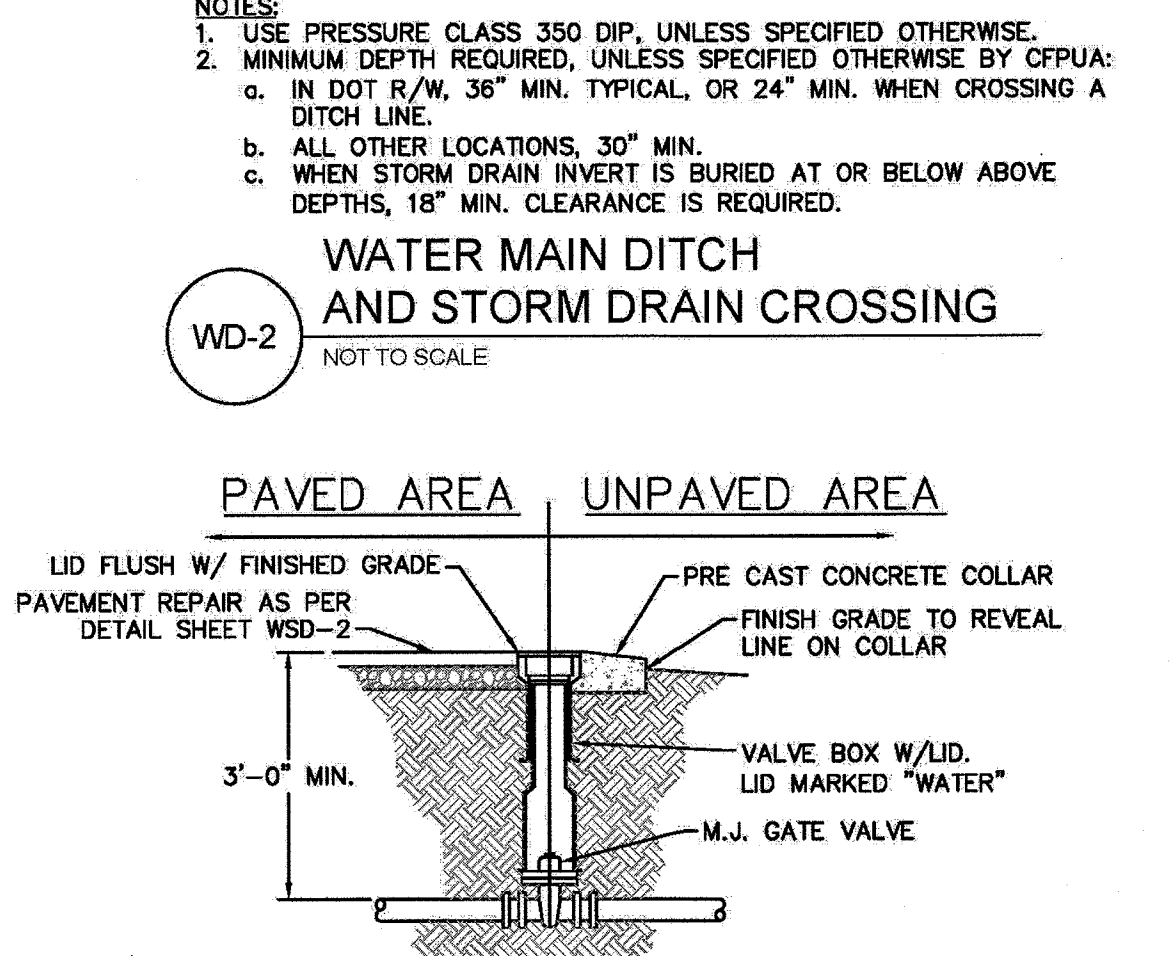
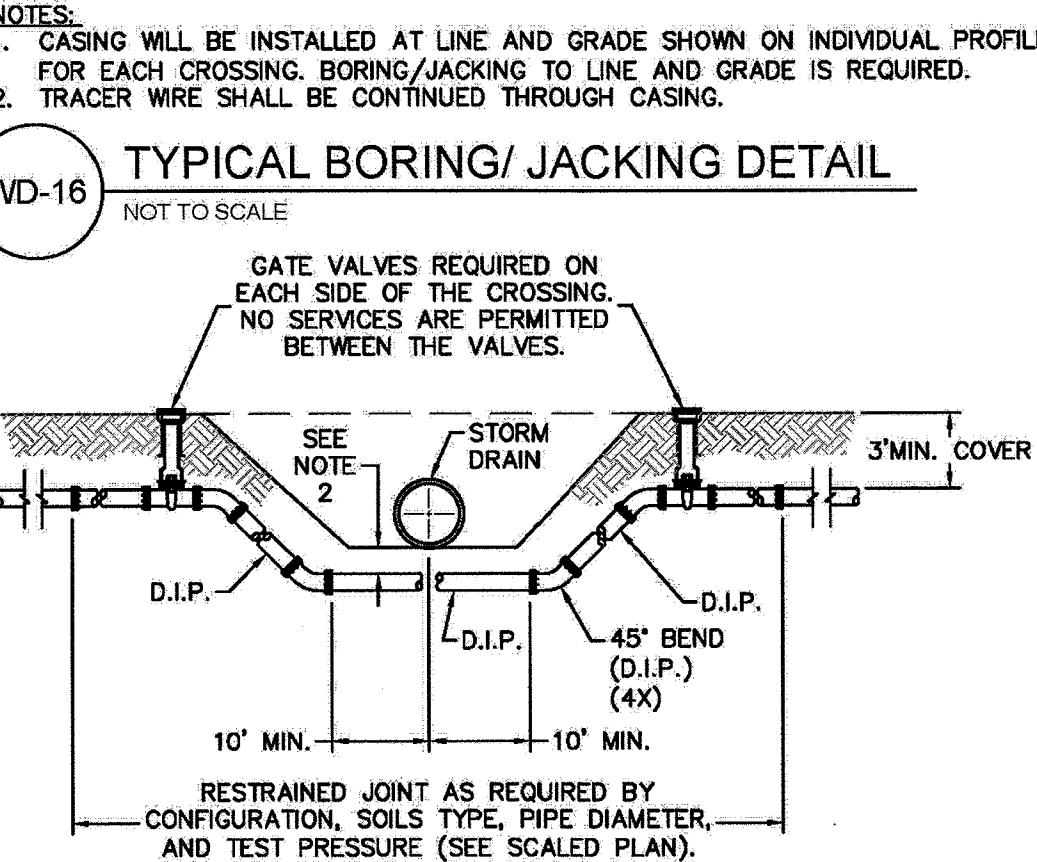
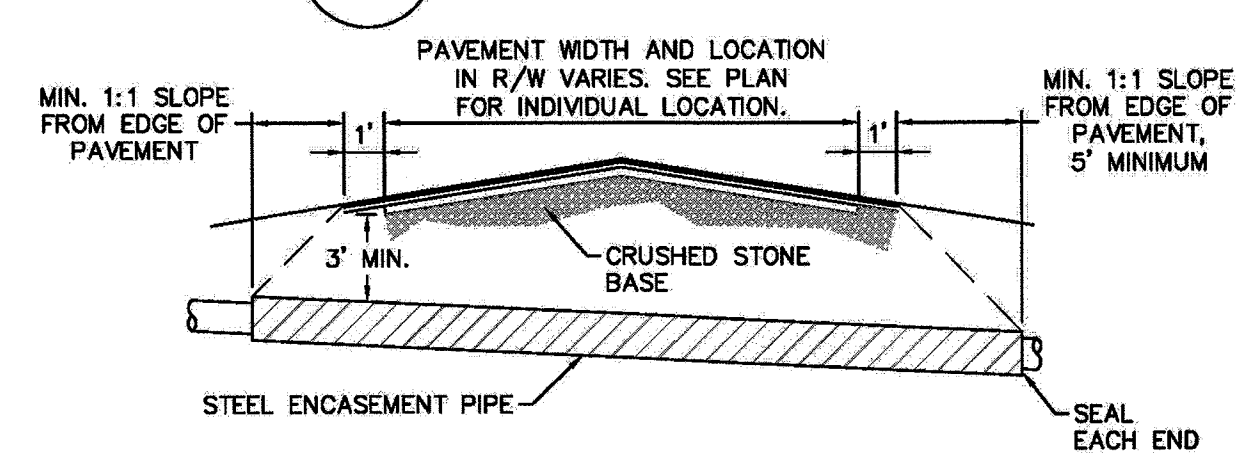
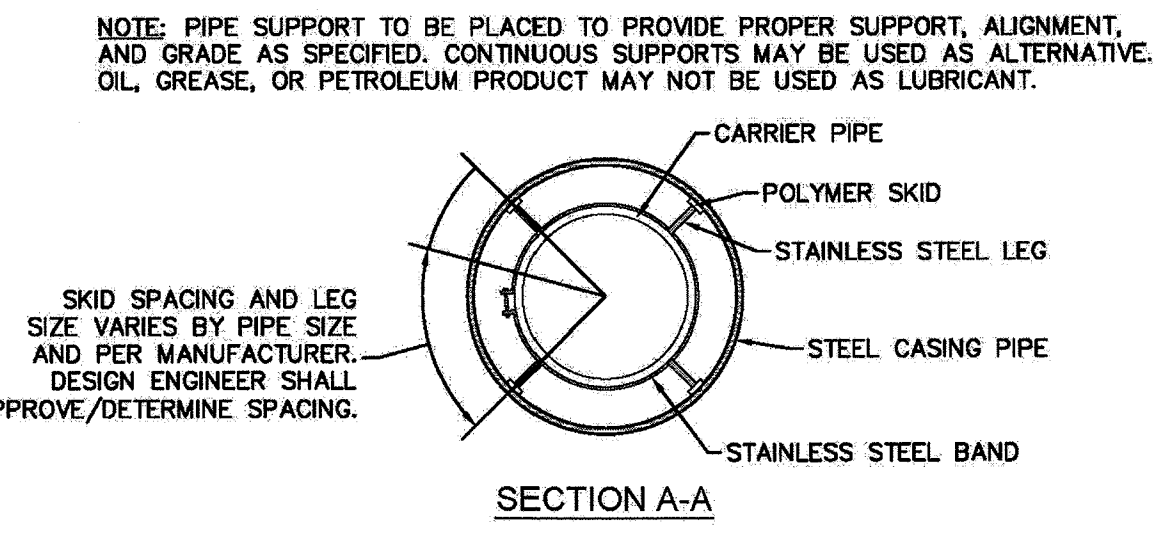
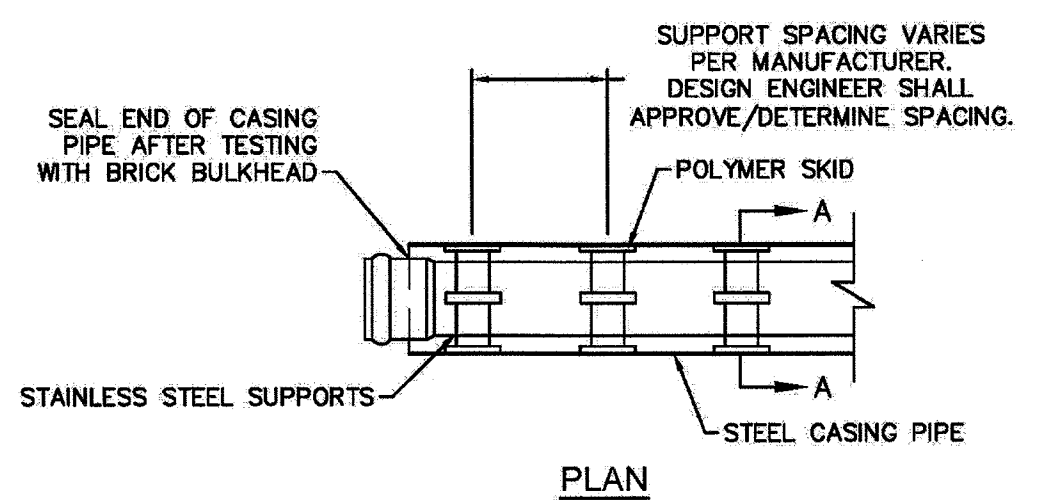
PROJECT STATUS:
FINAL DESIGN: []
PRELIMINARY LAYOUT: []
RELEASED FOR CONST.: []

DRAWING INFORMATION:
DATE: 06/20/18
DESIGNED: []
CHECKED: []
DRAWN: []
SCALE: []

SEAL: [Professional Engineer Seal]

C-5.3
PEI JOB #: 17215.PE

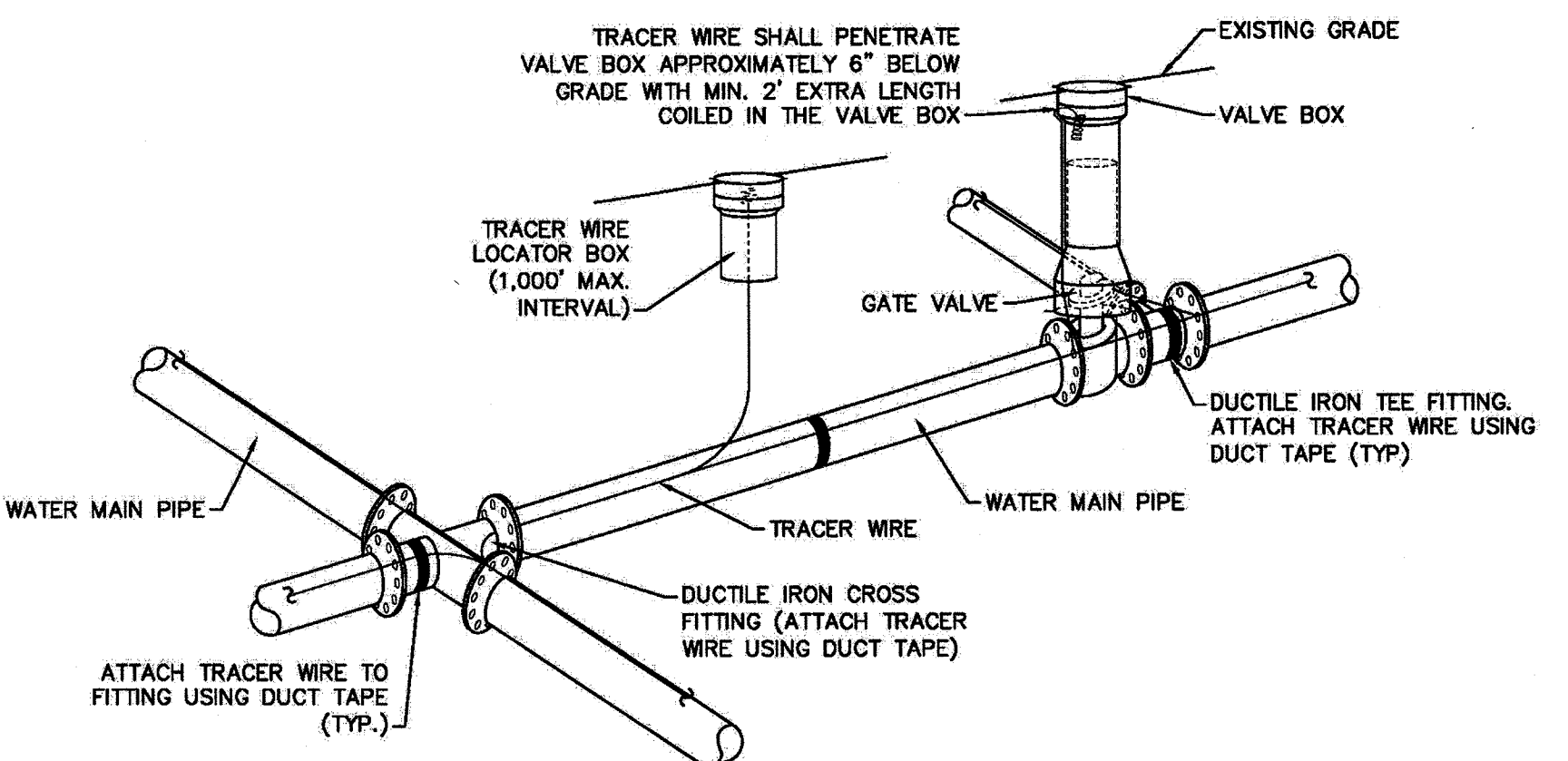
S:\Projects\CFPUA\Standard\Standard\Hatch\A\Water\Detail\Reg_17/20/18\181113.DWG (RPP)



SIZE	90° BENDS		45° BENDS		22-1/2° BENDS		TEES/PLUGS		45° VERT. BENDS
	A	B	A	B	A	B	A	B	
3"	8"	6"	5"	6"	3"	7"	6"	8"	27"
4"	8"	9"	5"	8"	3"	11"	6"	9"	28"
6"	14"	11"	9"	9"	8"	8"	12"	9"	36"
8"	16"	16"	12"	12"	10"	13"	14"	13"	42"
10"	18"	22"	15"	14"	14"	16"	18"	15"	50"
12"	20"	28"	18"	17"	16"	16"	22"	18"	62"
14"	26"	29"	21"	19"	18"	18"	26"	20"	72"
16"	33"	29"	25"	21"	20"	21"	32"	21"	83"
18"	40"	30"	28"	24"	22"	23"	36"	24"	88"

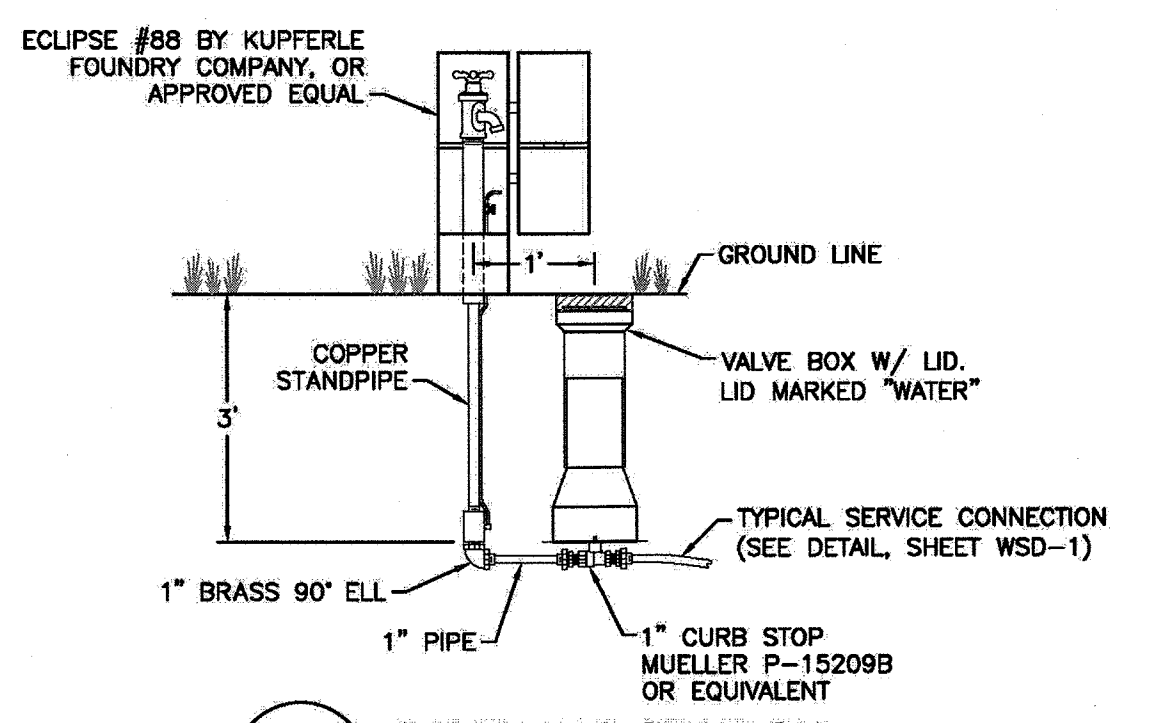
- NOTES:
 1. BASED ON 180 PSI TEST PRESSURE AND 2000 PSF SOIL BEARING CAPACITY.
 2. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED GROUND.
 3. USE MEG-A-LUG (PREFERRED) IN LIEU OF BLOCKING AND RODDING.

WD-4 THRUST BLOCK DETAIL
NOT TO SCALE

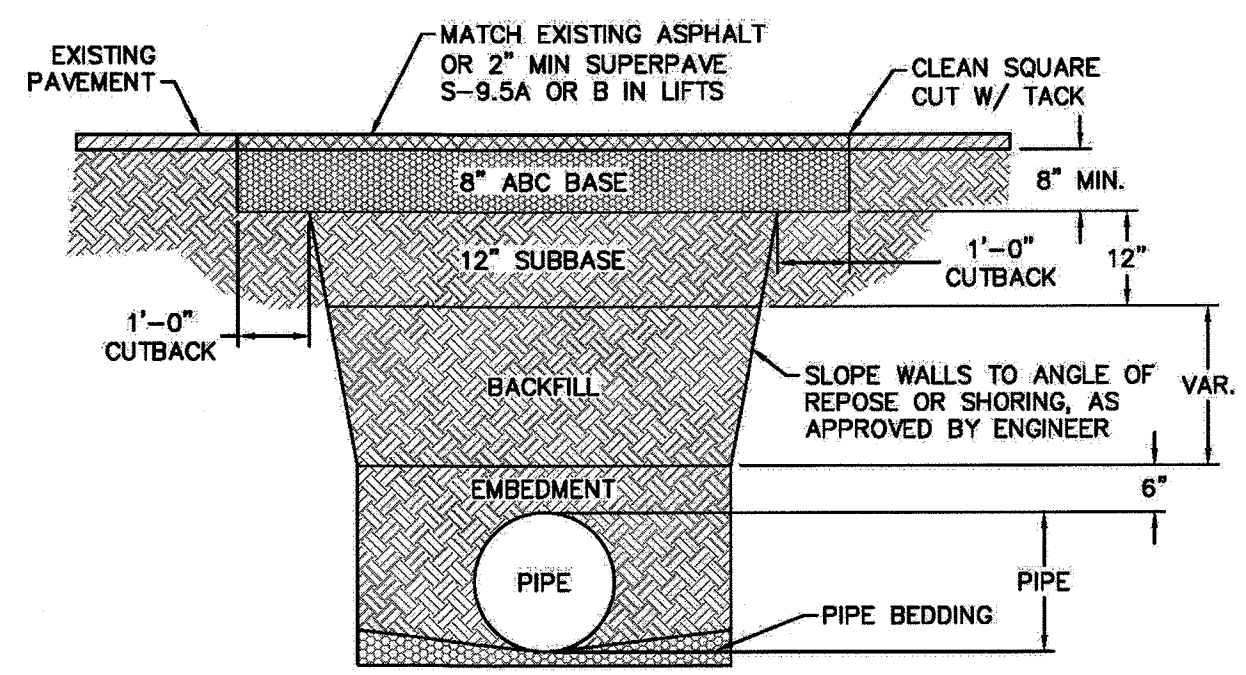


- NOTES:
 1. TRACER WIRE SHALL BE #10 COPPER SOLID CORE COPPER WIRE WITH GAS AND OIL RESISTANT INSULATION.
 2. WIRE SHALL BE STRAPPED TO ALL PVC WATER MAIN PIPING WITH DUCT TAPE AT 12 FOOT INTERVALS ALONG THE PIPE.
 3. SECURE WIRE TO ALL TEE AND CROSS FITTINGS WITH DUCT TAPE.
 4. ALL SPLICES IN THE WIRE SHALL BE MADE WITH 3M DBR DIRECT BURY SPLICE KIT AN UNDERGROUND RATED, WATERTIGHT, AND APPROVED SPLICE CONNECTOR OR APPROVED EQUAL.

WD-17 TRACER WIRE DETAIL
NOT TO SCALE

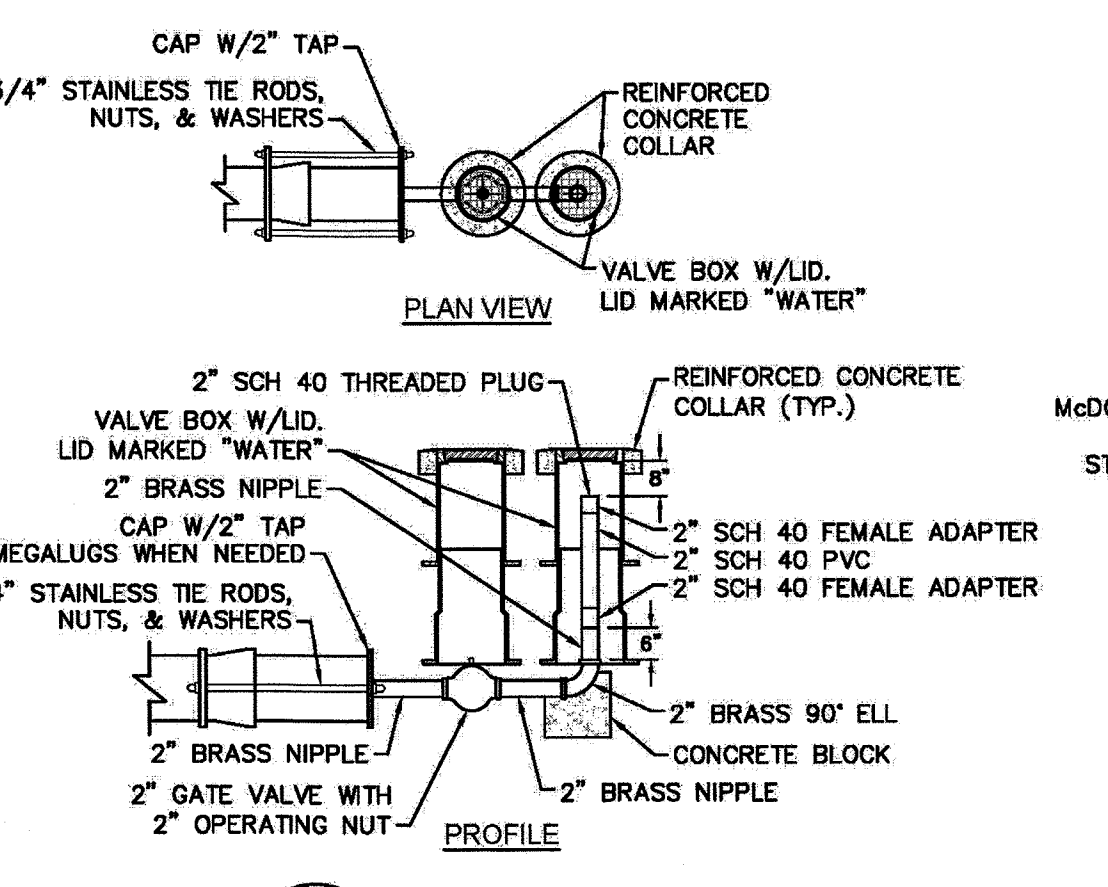


WD-6 SAMPLING STATION
NOT TO SCALE

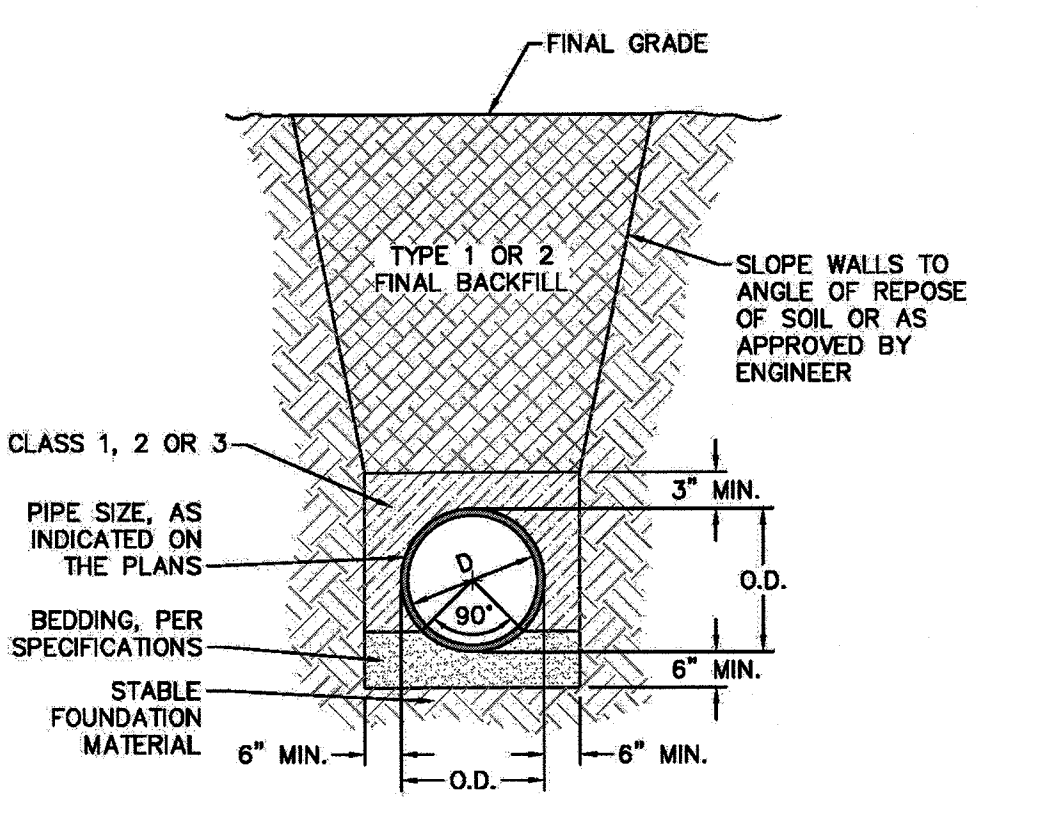


- NOTES:
 1. BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
 2. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION, (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
 3. 8-INCH OF ABC BASE MATERIAL SHALL BE USED ON CITY STREETS.
 4. BACKFILL AND BASE MATERIALS SHALL BE COMPACTED 12" MINIMUM LIFTS.
 5. SOIL SHALL BE COMPACTED BY A MECHANIZED TAMPER (I.E. JUMPING JACK), HOWEVER, VIBRATORY ROLLERS > 18" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
 6. ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
 7. ABC BASE AND SUBBASE COMPACTED TO 98% AND BACKFILL AND EMBEDMENT COMPACTED TO 90% AS DETERMINED BY THE MODIFIED PROCTOR AASHTO METHOD T-99.
 8. 1-FOOT CUTBACKS OF ASPHALT SHALL BE PREPARED ON UNDISTURBED SOIL. MINIMUM ASPHALT DENSITY IS 90%.

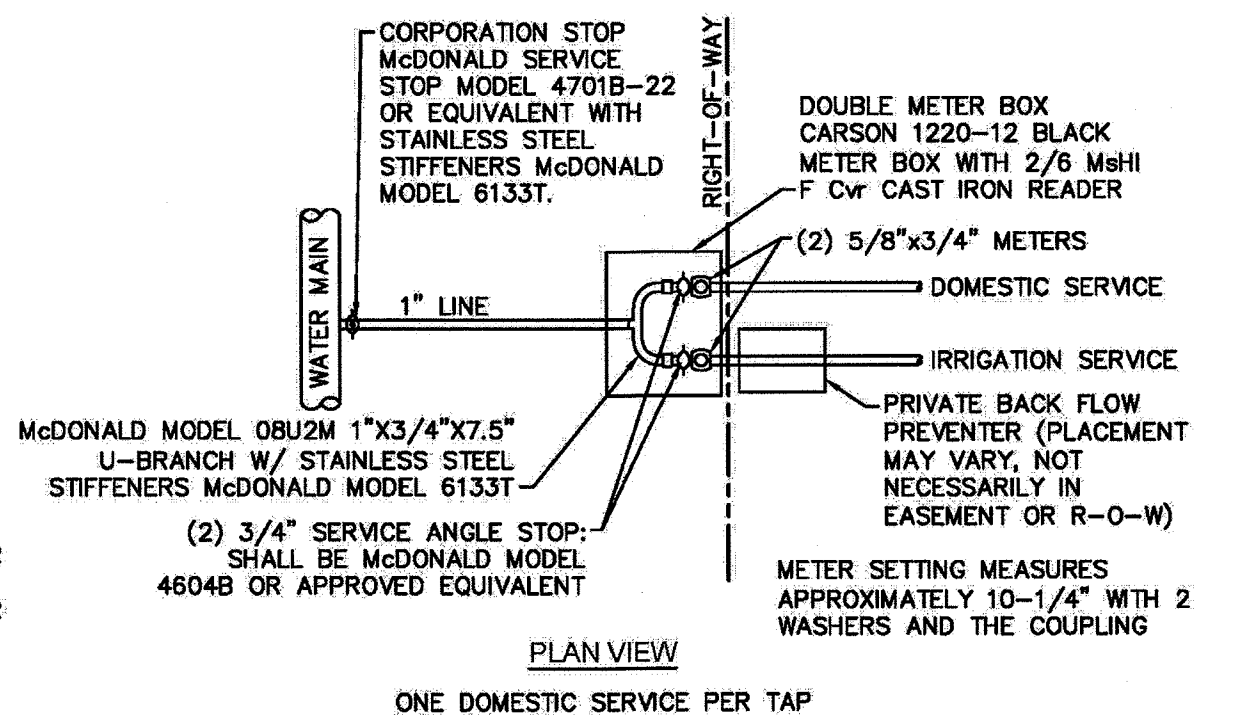
WD-14 PAVEMENT REPAIR WHERE PIPE INSTALLED
NOT TO SCALE



WD-5 2" BLOW-OFF
NOT TO SCALE



WD-13 TYPICAL TRENCH DETAIL
NOT TO SCALE



WD-9 DOUBLE SERVICE CONNECTION
NOT TO SCALE

GENERAL NOTES:
 1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
 2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
 3. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
 4. THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
 5. THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN AND STOCKPILE AREAS (TO ARRANGE AND ENSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

REV.	DESCRIPTION	DATE
1	Revised Water Main Ditch and Storm Crossing Detail	11/12/13
2	Revised Water Main Ditch and Storm Crossing Detail	05/05/14
3	Revised Tracer Wire Detail	10/20/15
4	Added Backflow Preventer to Double Service Connection Detail	02/01/16
5	Revised Sampling Station Detail	02/15/16

CFPUA WATER DISTRIBUTION SYSTEM

STANDARD DETAILS

CAPE FEAR PUBLIC UTILITY AUTHORITY
 235 GOVERNMENT CENTER DRIVE
 WILMINGTON, NC 28403
 OFFICE: (910)332-6560

DATE: 1/9/12
 SCALE: N/A
 DRAWN BY: CFPJA
 CHECKED BY: CFPJA
 PROJECT NO.:
 SHEET NO: WSD-2

WILMINGTON NORTH CAROLINA
 Public Services • Engineering Division

Approved Construction Plan
 Name: Nicole Smith Date: 6/20/18
 Planning: W. S. Smith 6-20-18
 Traffic: R. J. Smith 6-21-18
 Fire: R. J. Smith 6-21-18

APPROVED STORMWATER MANAGEMENT PLAN
 Date: 6/21/18 Permit #: 2018024
 Signed: [Signature]

NC DENR PWSS WATER PERMIT #:
 WATER CAPACITY: _____ GPD
 DWQ SEWER PERMIT #:
 SEWER CAPACITY: _____ GPD
 SEWER SHED # AND PLANT:
 SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)

REVISIONS:

CLIENT INFORMATION:
 BECKER MORGAN GROUP, INC.
 3205 RANDALL PKWY, #211
 Wilmington, NC 28403

PARAMOUNT ENGINEERING, INC.
 122 Cinema Drive
 Wilmington, North Carolina 28403
 (910) 791-6707 (O) (910) 791-6700 (F)
 NC License #: C-2846

DETAILS
 ROLAND GRISE MIDDLE SCHOOL
 4412 LAKE AVENUE
 WILMINGTON, NORTH CAROLINA

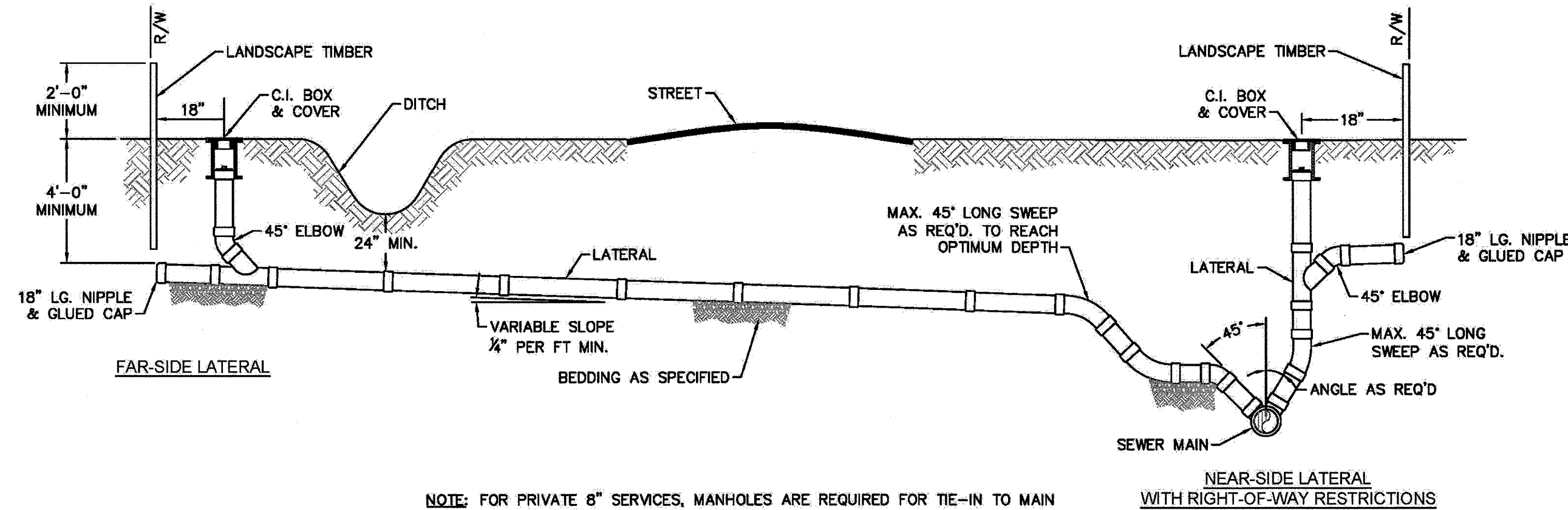
RELEASED FOR CONSTRUCTION

PROJECT STATUS:
 CONCEPTUAL LAYOUT:
 FINAL DESIGN:
 RELEASED FOR CONSTRUCTION:
 06/20/18

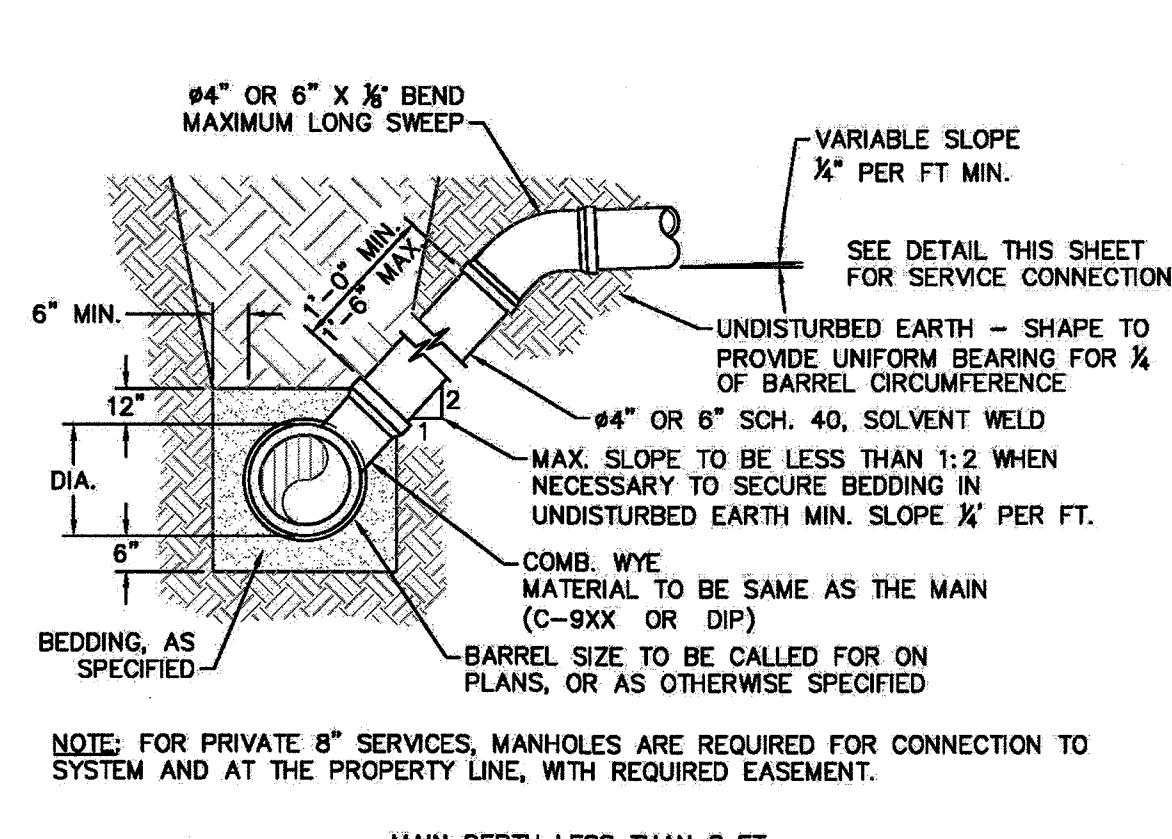
DRAWING INFORMATION:
 DATE: 06/20/18
 SCALE: N.T.S.
 DESIGNED: RJB
 CHECKED: RJB

SEAL
 PROFESSIONAL ENGINEER
 ROBERT P. BALLANTYNE
 031591
 06/20/18

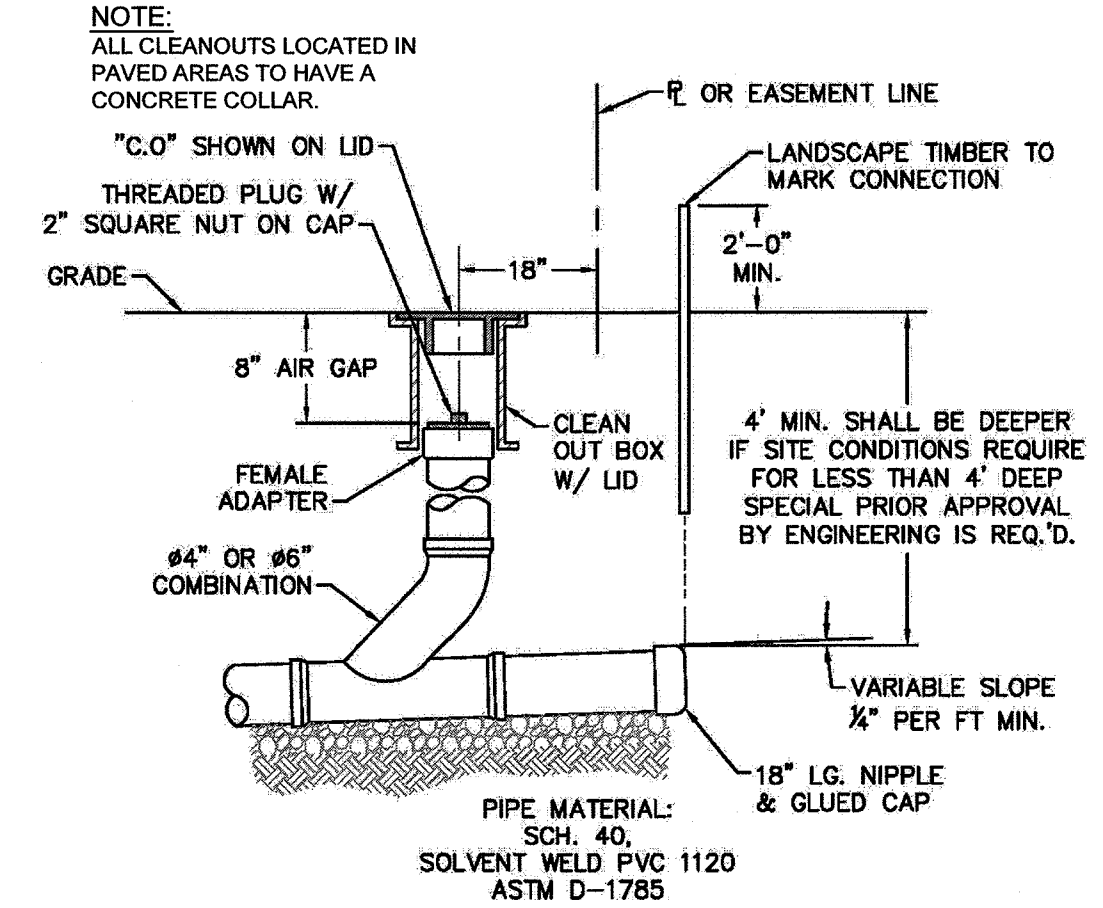
C-5.4
 PEI JOB#: 17215.PE



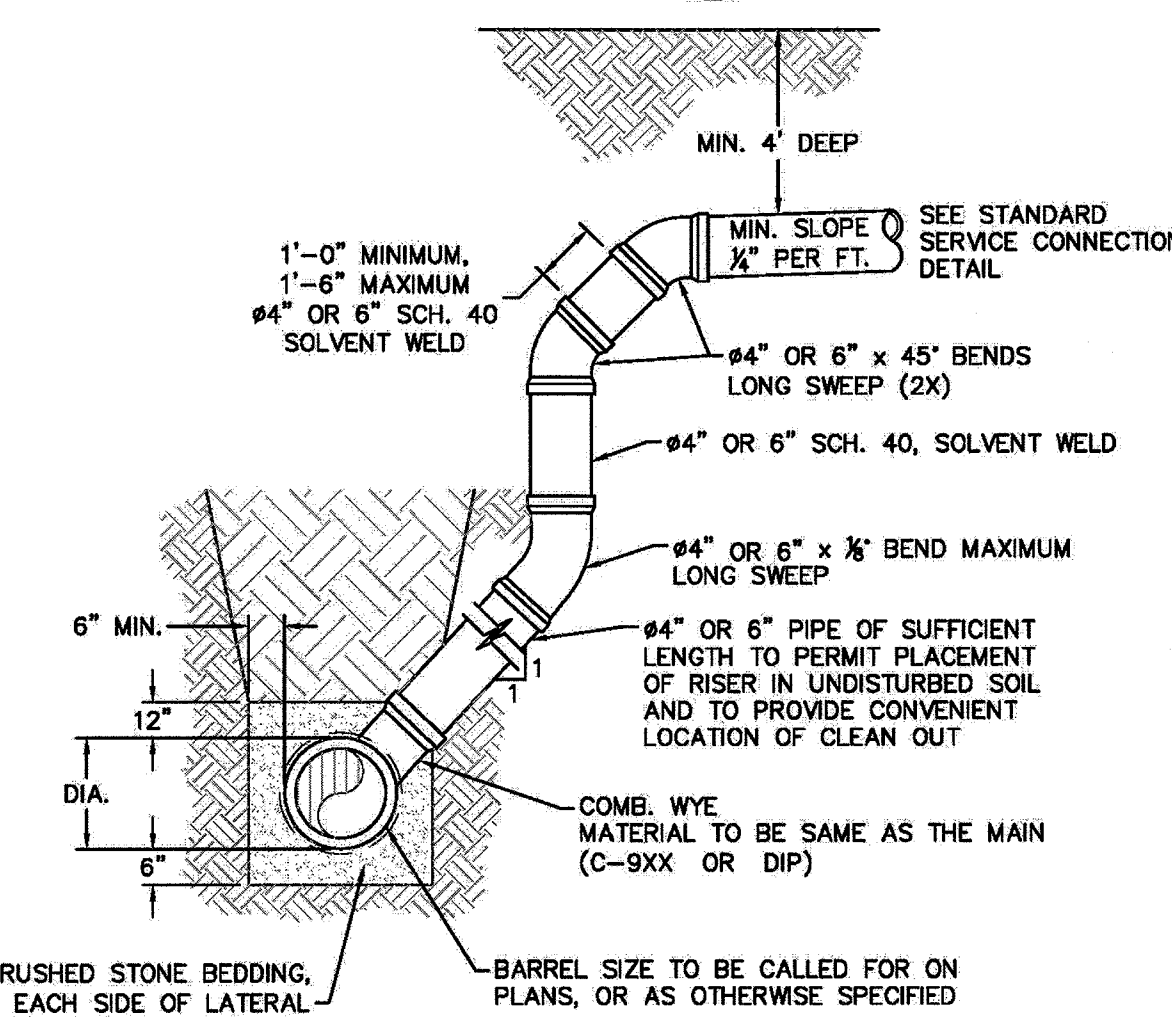
NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN
SD-19 STANDARD SERVICE CONNECTION TO SANITARY SEWER
 NOT TO SCALE



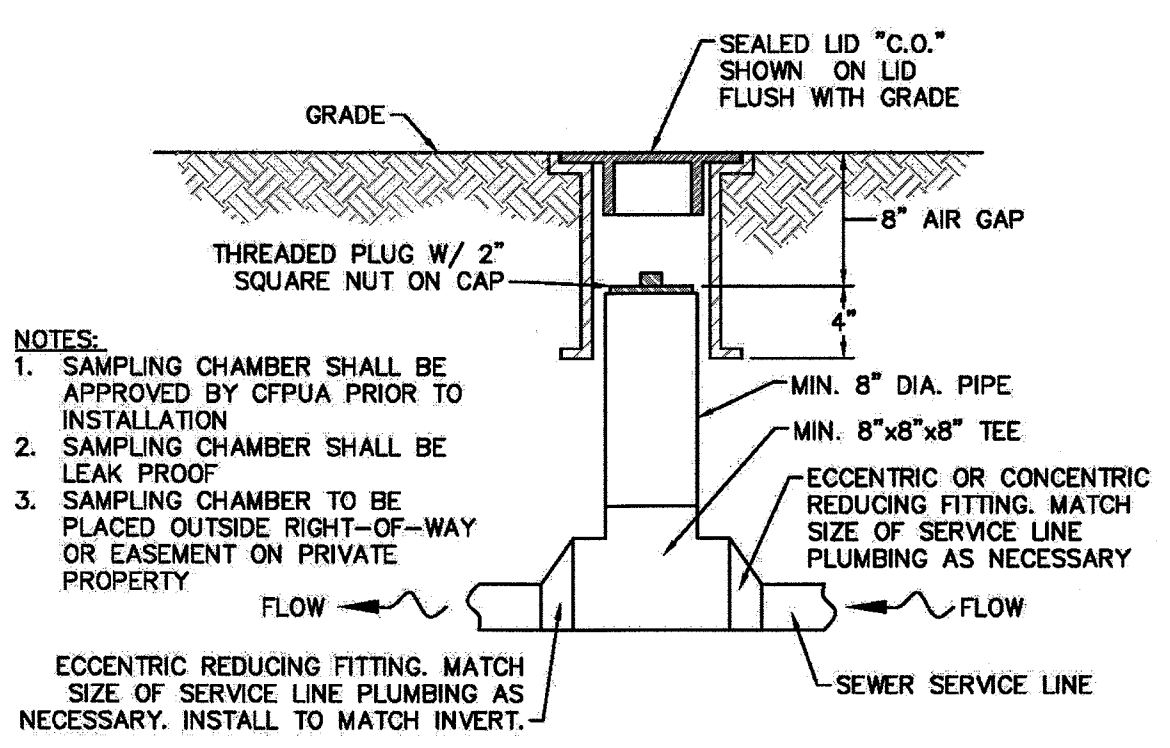
MAIN DEPTH LESS THAN 8 FT
SD-10 STANDARD SERVICE LATERAL
 NOT TO SCALE



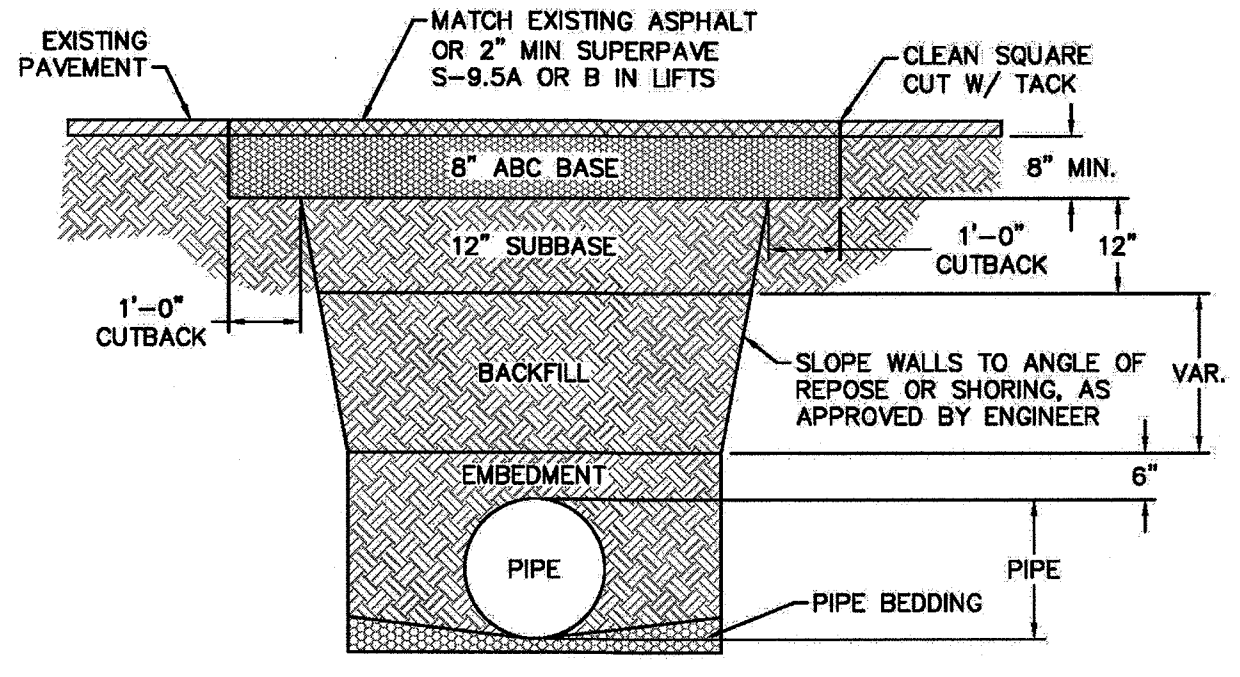
NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR CONNECTION TO SYSTEM AND AT THE PROPERTY LINE, WITH REQUIRED EASEMENT.
SD-11 SERVICE CONNECTION AND CLEAN-OUT
 NOT TO SCALE



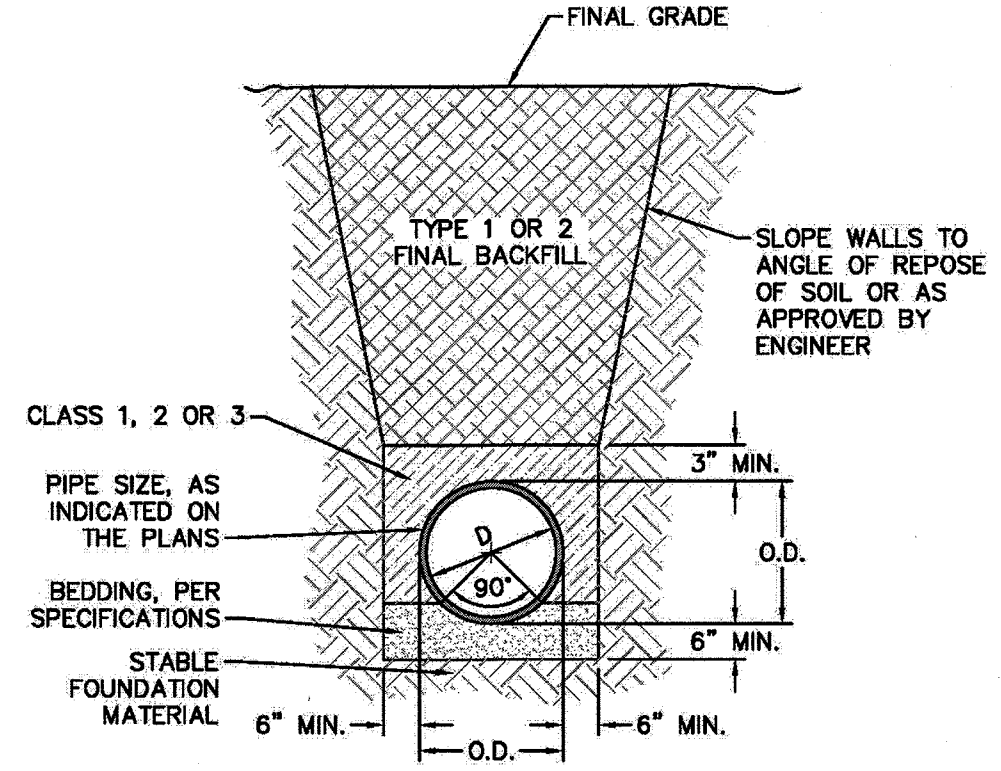
NOTE: 1. SPECIAL CARE SHALL BE TAKEN DURING BACKFILL OPERATIONS. THE RISER SHALL BE PLUMB AND TRUE AT ALL TIMES, AND REST ON FIRM, STABLE FOUNDATION.
 2. FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR CONNECTION TO SYSTEM AND AT THE PROPERTY LINE, WITH REQUIRED EASEMENT.
SD-12 DEEP SERVICE LATERAL
 NOT TO SCALE



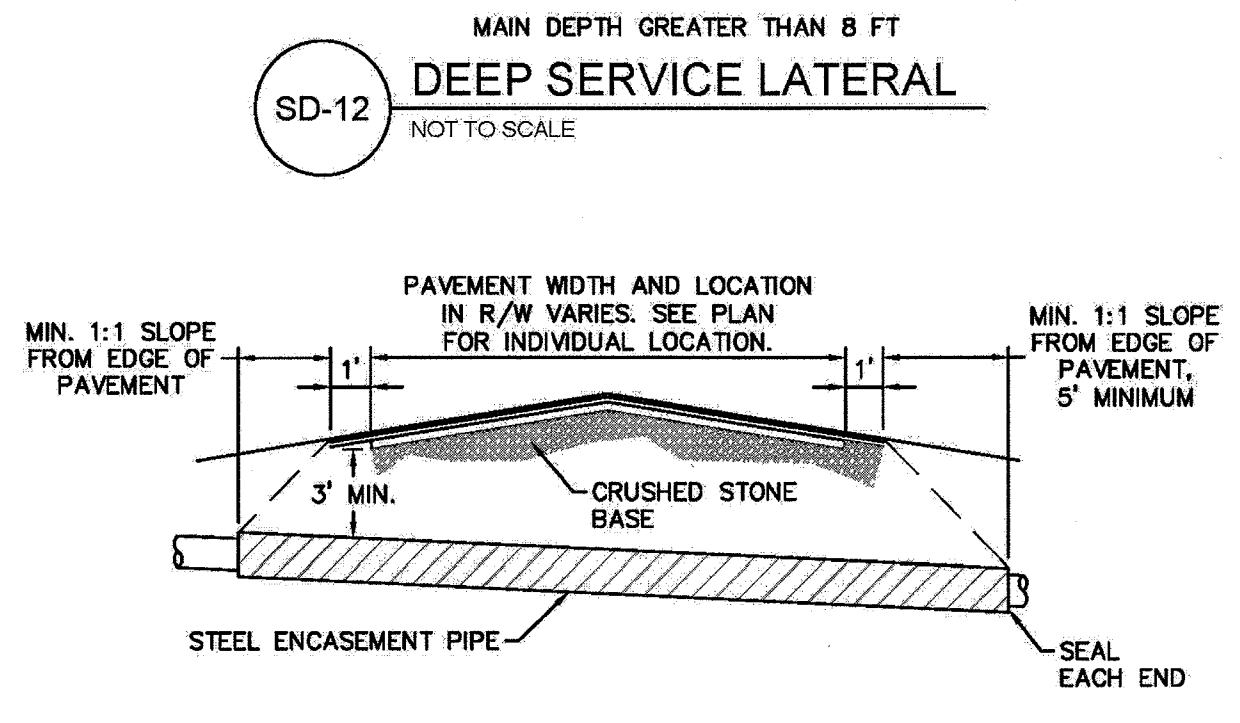
NOTE: 1. SAMPLING CHAMBER SHALL BE APPROVED BY CFPUA PRIOR TO INSTALLATION.
 2. SAMPLING CHAMBER SHALL BE LEAK PROOF.
 3. SAMPLING CHAMBER TO BE PLACED OUTSIDE RIGHT-OF-WAY OR EASEMENT ON PRIVATE PROPERTY.
 ECCENTRIC REDUCING FITTING. MATCH SIZE OF SERVICE LINE PLUMBING AS NECESSARY. INSTALL TO MATCH INVERT.
SD-13 SAMPLING CHAMBER
 NOT TO SCALE



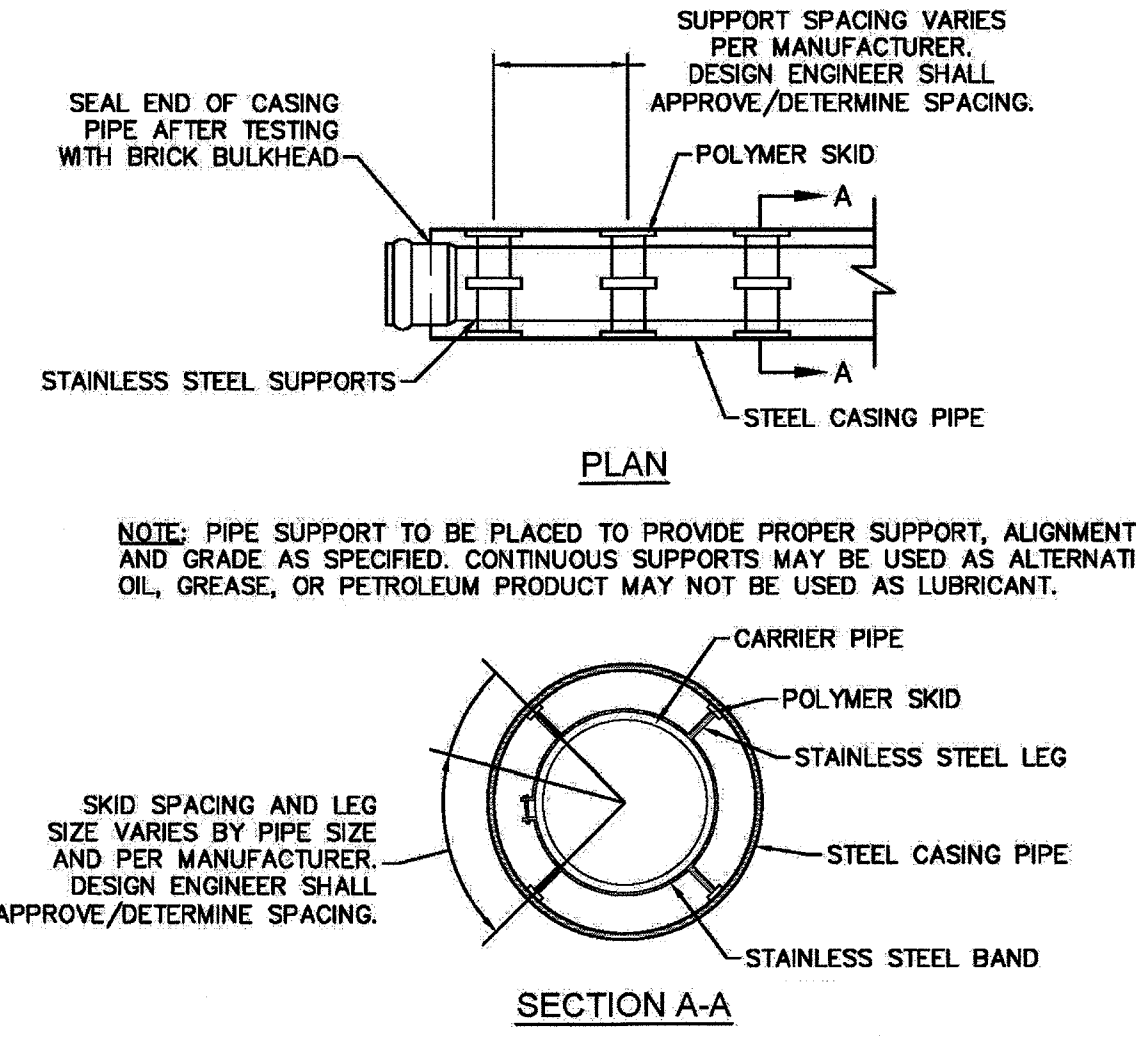
NOTE: 1. BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
 2. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION. (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC.)
 3. 8-INCH OF ABC BASE MATERIAL SHALL BE USED ON CITY STREETS.
 4. BACKFILL AND BASE MATERIALS SHALL BE COMPACTED 12" MINIMUM LIFTS
 5. SOIL SHALL BE COMPACTED BY A MECHANIZED TAMPER (I.E. JUMPING JACK). HOWEVER, VIBRATORY ROLLERS > 18" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
 6. ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
 7. ABC BASE AND SUBBASE COMPACTED TO 98% AND BACKFILL AND EMBEDMENT COMPACTED TO 90% AS DETERMINED BY THE MODIFIED PROCTOR AASHTO METHOD T-99.
 8. 1-FOOT CUTBACKS OF ASPHALT SHALL BE PREPARED ON UNDISTURBED SOIL. MINIMUM ASPHALT DENSITY IS 90%.
 (FOR PRIVATE ROADS AND PAVED AREAS, CONTRACTOR TO MEET MIN. REQUIREMENTS AS DEFINED BY RIGHT-OF-WAY OWNER FOR PUBLIC ROAD REPAIRS)
SD-14 PAVEMENT REPAIR WHERE PIPE INSTALLED
 NOT TO SCALE



SD-15 TYPICAL TRENCH DETAIL
 NOT TO SCALE



NOTE: 1. CASING WILL BE INSTALLED AT LINE AND GRADE SHOWN ON INDIVIDUAL PROFILE FOR EACH CROSSING. BORING/JACKING TO LINE AND GRADE IS REQUIRED.
 2. TRACER WIRE SHALL BE CONTINUED THROUGH CASING.
SD-16 TYPICAL BORING/JACKING DETAIL
 NOT TO SCALE



NOTE: PIPE SUPPORT TO BE PLACED TO PROVIDE PROPER SUPPORT, ALIGNMENT, AND GRADE AS SPECIFIED. CONTINUOUS SUPPORTS MAY BE USED AS ALTERNATIVE. OIL, GREASE, OR PETROLEUM PRODUCT MAY NOT BE USED AS LUBRICANT.
 SKID SPACING AND LEG SIZE VARIES BY PIPE SIZE AND PER MANUFACTURER. DESIGN ENGINEER SHALL APPROVE/DETERMINE SPACING.
 NOTE: ALL STAINLESS STEEL PARTS TO BE 316 SST.
SD-17 PIPE CASING SUPPORT DETAIL
 NOT TO SCALE

SD-14 PAVEMENT REPAIR WHERE PIPE INSTALLED
 NOT TO SCALE

- GENERAL NOTES:**
- NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
 - THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
 - THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
 - THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
 - THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN AND STOCKPILE AREAS (TO ARRANGE AND ENSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

REV:	DESCRIPTION:	DATE:
1	SAMPLING CHAMBER REVISED	10/28/12
2	Revised Multiple Details	02/15/16

CFPUA SANITARY SEWER

STANDARD DETAILS

CAPE FEAR PUBLIC UTILITY AUTHORITY
 235 GOVERNMENT CENTER DRIVE
 WILMINGTON, NC 28403
 OFFICE: (910) 332-6560

DATE: 1/8/12	SCALE: N/A	DRAWN BY: CFPJA
CHECKED BY: CFPJA	PROJECT NO.:	SHEET NO.: SSD-2

CITY OF WILMINGTON NORTH CAROLINA
 Public Services • Engineering Division

APPROVED CONSTRUCTION PLAN
 APPROVED STORMWATER MANAGEMENT PLAN

Name: Nicole D Smith Date: 6/20/18
 Planning: Nicole D Smith 6/20/18
 Traffic: W. L. Smith 6-20-18
 Fire: W. L. Smith 6-20-18

Date: 6/21/18 Permit #: 2018024
 Signed: [Signature]

NC DENR PWSS WATER PERMIT #: _____
 WATER CAPACITY: _____ GPD
 DWQ SEWER PERMIT #: _____
 SEWER CAPACITY: _____ GPD
 SEWER SHED # AND PLANT: _____
 SEWER TO FLOW THROUGH NET: YES or NO (CIRCLE ONE)

RELEASED FOR CONSTRUCTION

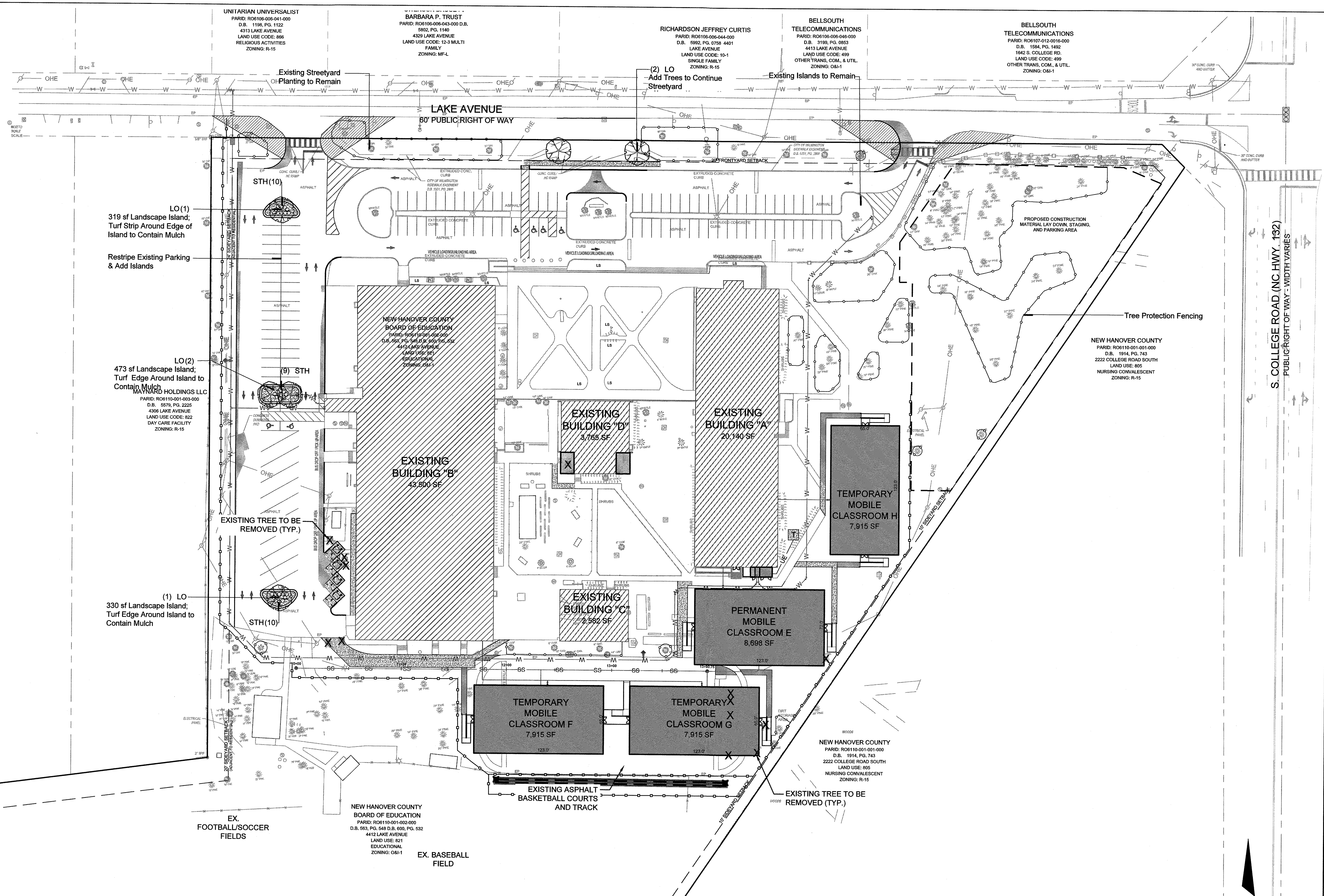
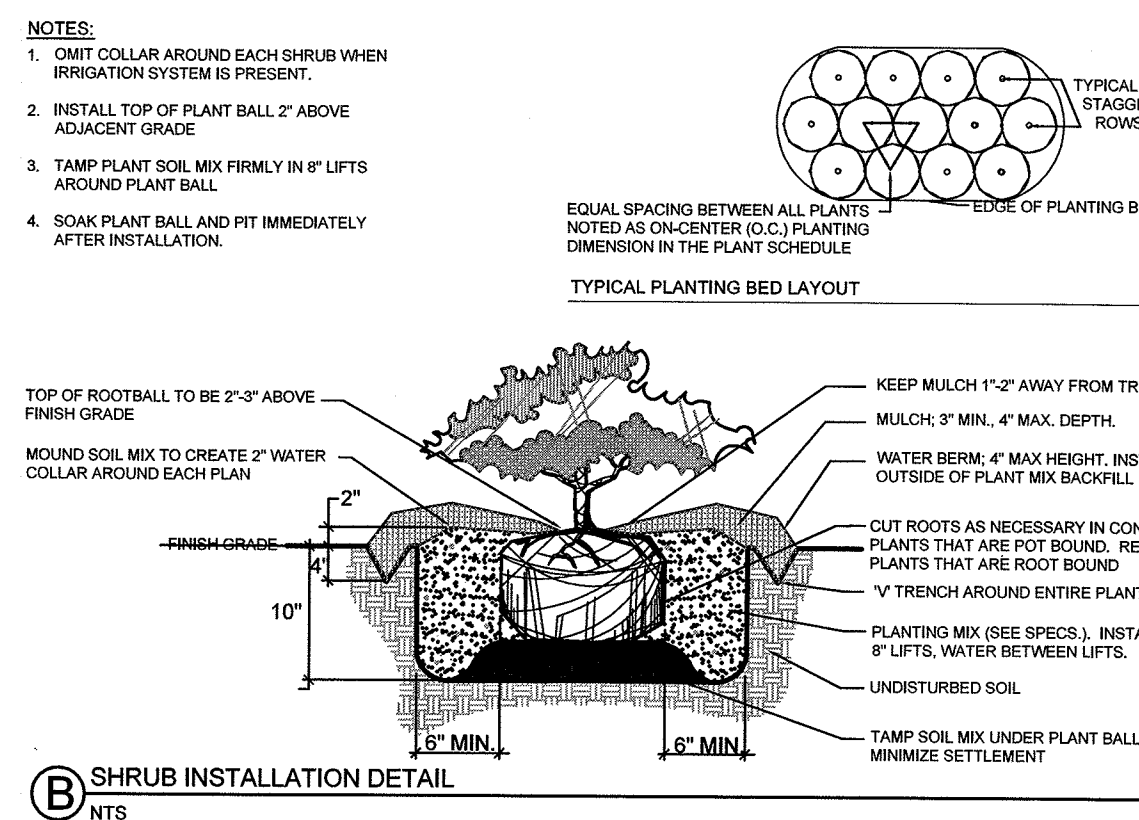
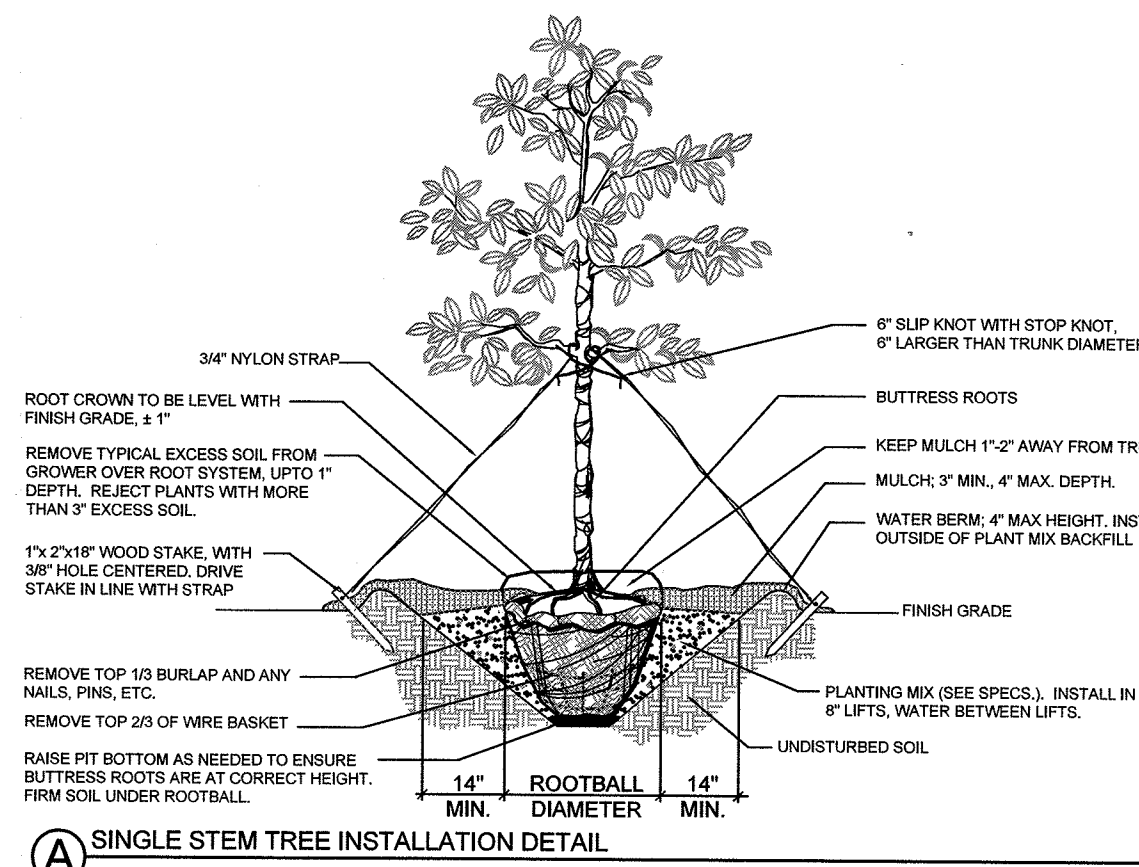
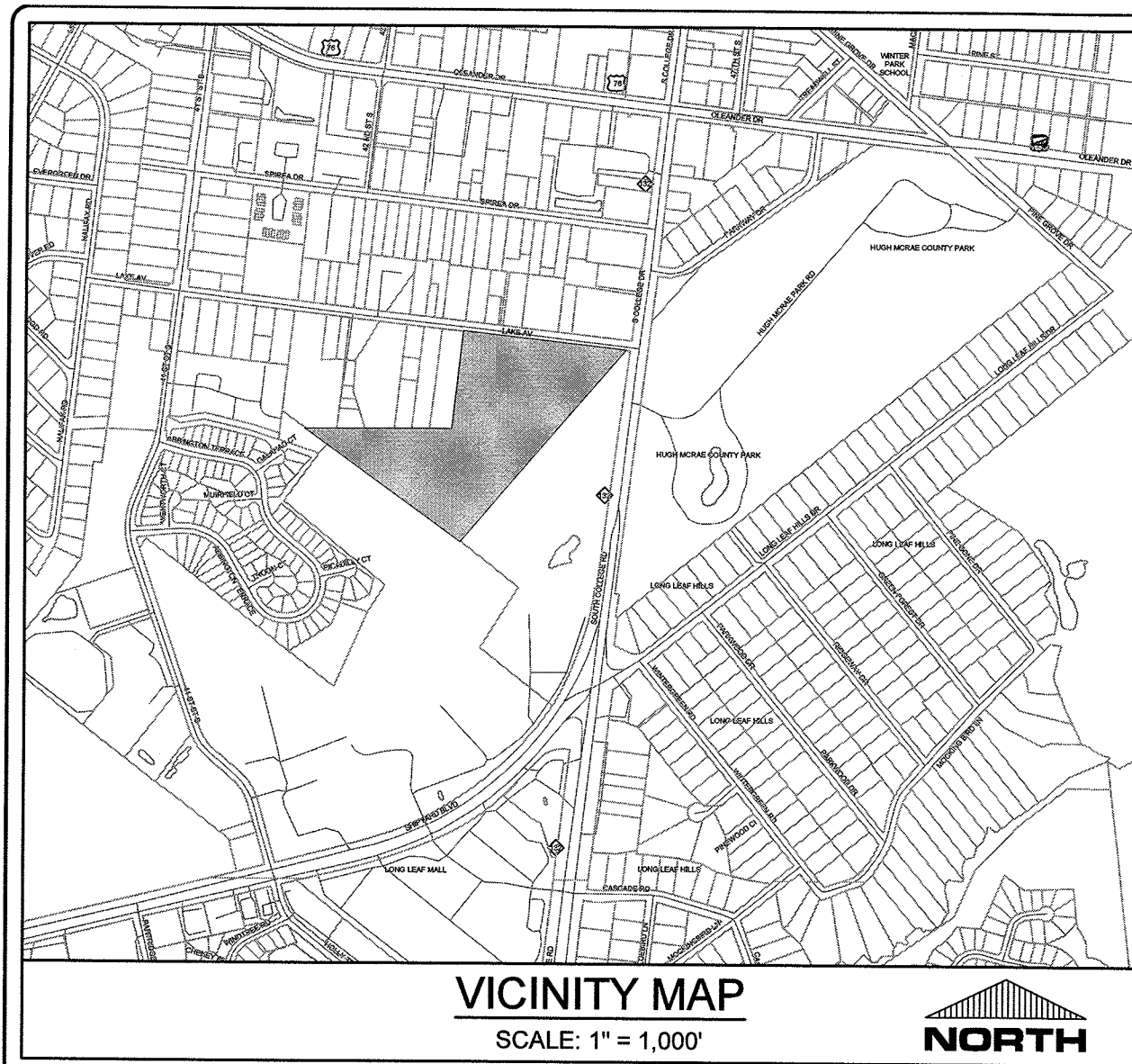
PARAMOUNT ENGINEERING

122 Cinema Drive
 Wilmington, North Carolina 28403
 (910) 791-6707 (O) (910) 791-6766 (F)
 NC License #: C-2846

ROLAND GRISE MIDDLE SCHOOL
 4412 LAKE AVENUE
 WILMINGTON, NORTH CAROLINA

C-5.5

PEI JOB#: 17215.PE



Roland Grise Tree Removal & Required Mitigation						
Qty of Trees	Caliper Inches*	Tree Common Name	City Tree Type Classification	Total Cal. Inches to be Removed	% Mitigation	Significant
REGULATED & SIGNIFICANT TREES						
1	10	OAK	hardwood	10	100%	no
1	11	OAK	hardwood	11	100%	no
1	8	OAK	hardwood	8	100%	no
1		MYRTLE	hardwood	0	100%	no
Total Category 1 Significant Trees:				0		
Category 2 (75% Mitigation)						
1	12	GUM (SWEETGUM)	hardwood	12	75%	no
1	20	GUM (SWEETGUM)	hardwood	20	75%	no
1	22	GUM (SWEETGUM)	hardwood	22	75%	no
1	10	CEDAR	conifer	10	75%	no
Total Category 2 Significant Trees:				0		
Category 3 (50% Mitigation)						
2	16	PINE (LOBLOLLY)	conifer	32	50%	no
2	20	PINE (LOBLOLLY)	conifer	40	50%	no
Total Category 3 Significant Trees:				0		
Total Qty. of Mitigation Trees for Significant Tree Removal: 0						

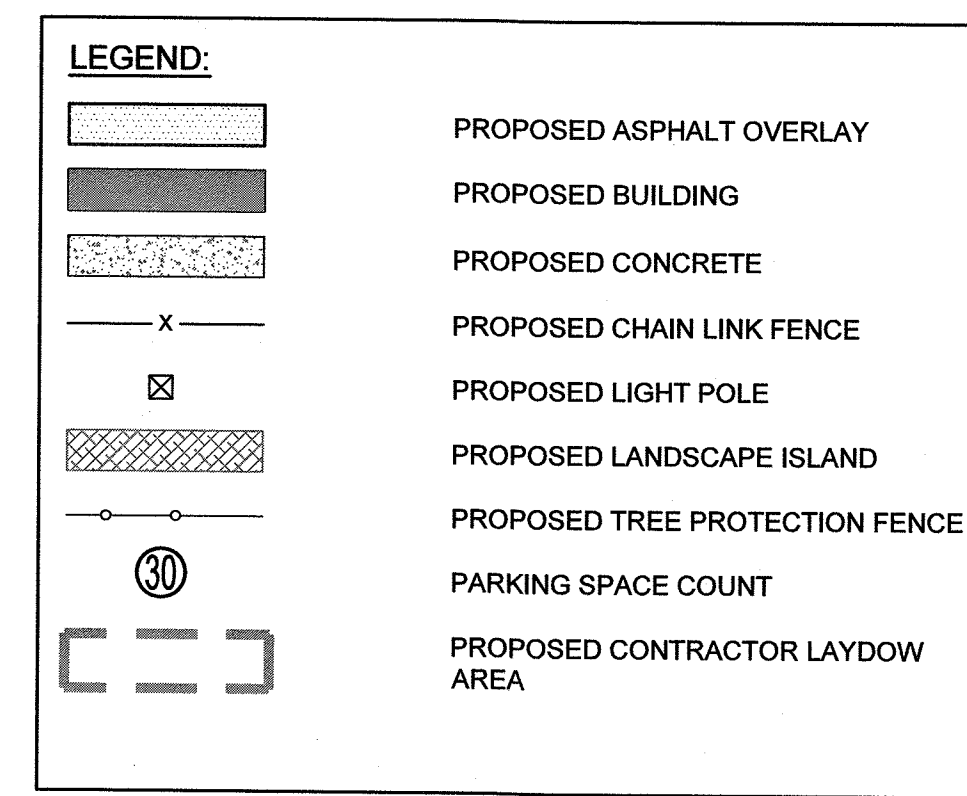
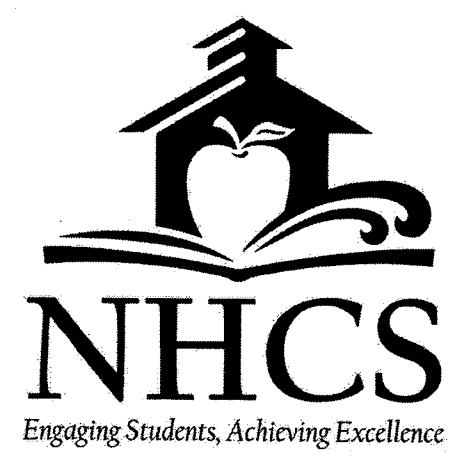
LANDSCAPE NOTES:

- CONTRACTOR SHALL REFER TO SHEET C-1.0 FOR GENERAL NOTES.
- CONTRACTOR SHALL REFER TO THE DEMOLITION PLANS FOR SPECIFIC TREE REMOVAL.
- PRIOR TO ANY LAND CLEARING, GRADING, OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING SHALL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES. ALSO, THAT NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
- ALL PROPOSED VEGETATION WITHIN SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 30' - 10'.

PLANT SCHEDULE

TREES	Quantity	Botanical	SIZE
LO	6	Quercus virginiana	2.5\"
SHRUBS	Quantity	Botanical	
STH	29	Ilex c. 'Soft Touch'	3 gal, 12\"
TURF GRASS	Quantity	Botanical	
ERE OPH	519.12	Centipede Sod	sod or seed; verify with owner prior to install

ALL TREES, SHRUBS, & TURF GRASS ARE PROPOSED TO BE PLANTED IN NEWLY CUTOOT PARKING ISLANDS AND STREETYARD.



CITY OF WILMINGTON
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

Date: 6/21/18 Permit # 2018024
Signed: [Signature]

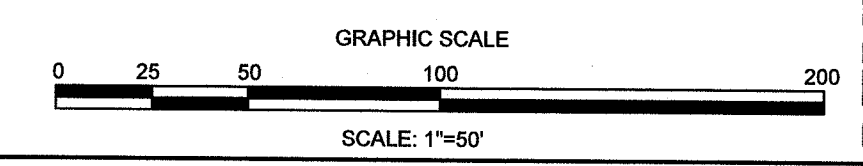
Approved Construction Plan

Name: Nicole Smith Date: 6/20/18
Traffic: W. Schuler 6-20-18
Fire: W. R. [Signature] 6-21-18

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

811
Know what's below. Call before you dig.

NCDENR PWSS WATER PERMIT # _____ GPD
WATER CAPACITY: _____ GPD
DWQ SEWER PERMIT # _____ GPD
SEWER CAPACITY: _____ GPD
SEWER SHED # AND PLANT: _____
SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)



REVISIONS:

CLIENT INFORMATION:
BECKER MORGAN GROUP
3205 RANDALL PKWY., #211
WILMINGTON, NC 28403

PARAMOUNT ENGINEERING, INC.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

LANDSCAPE PLAN
ROLAND GRISE MIDDLE SCHOOL
4412 LAKE AVENUE
WILMINGTON, NORTH CAROLINA

PROJECT STATUS:
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FINAL DESIGN: 06/20/18
RELEASED FOR CONSTRUCTION: 06/20/18

DRAWING INFORMATION:
DATE: 06/20/18
SCALE: AS SHOWN
DESIGNED: [Signature]
CHECKED: [Signature]

SEAL:
NORTH CAROLINA
1823
5/2/18
WILMINGTON, ENGINEERING

L-1.0
PEI JOB#: 17215.PE

RELEASED FOR CONSTRUCTION