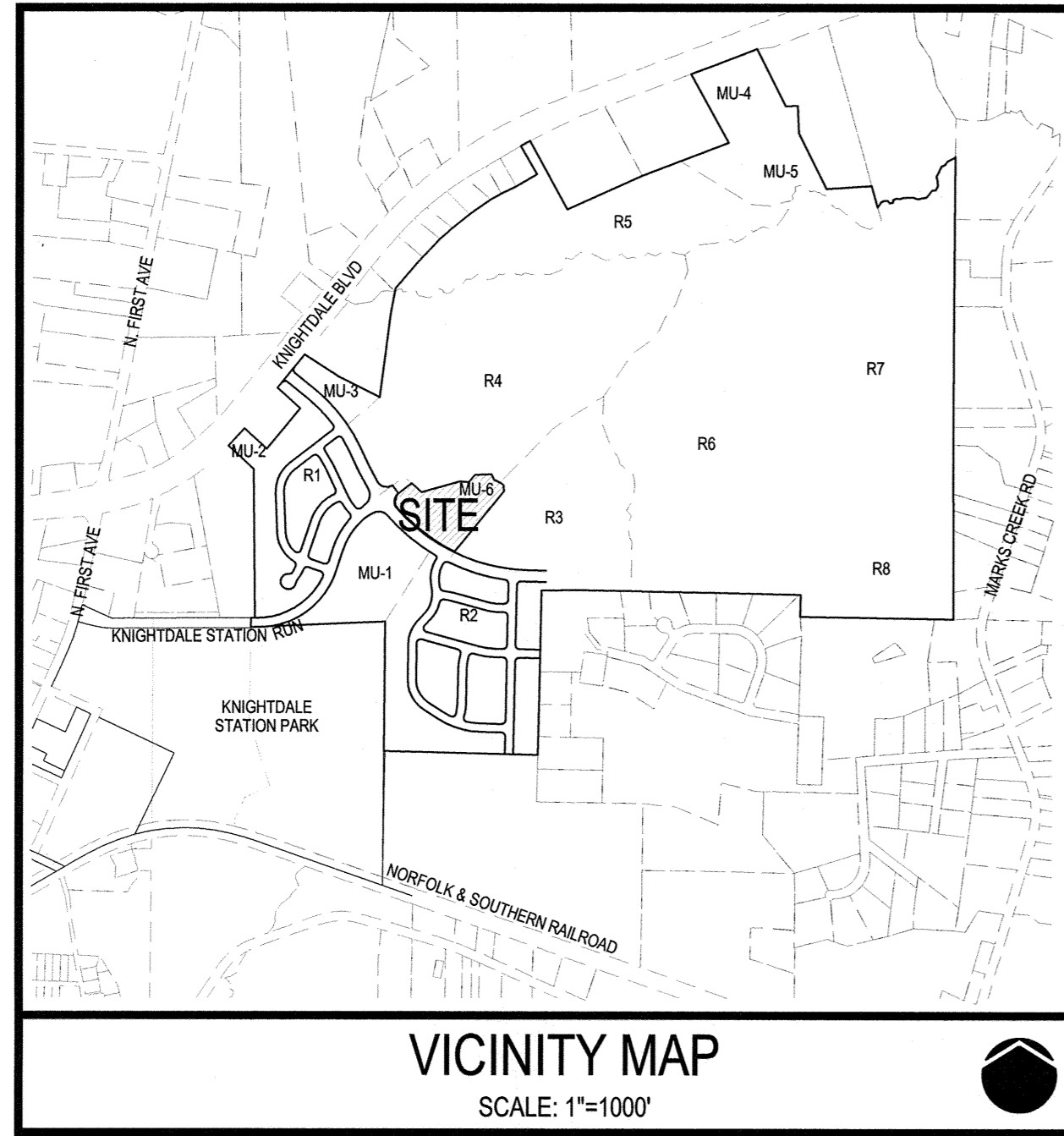


# CONSTRUCTION DRAWINGS FOR THALES ACADEMY

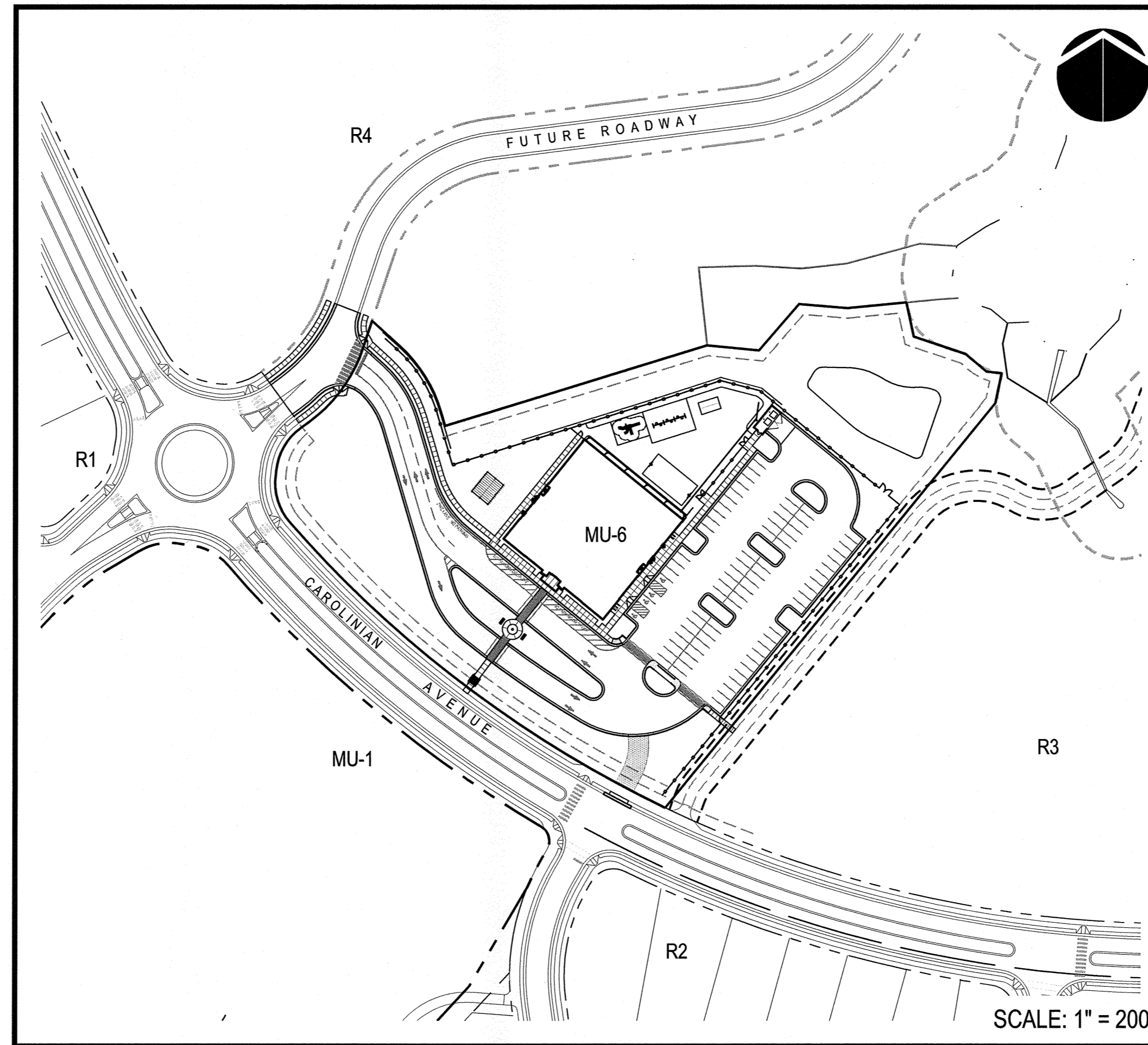
## KNIGHTDALE, NORTH CAROLINA

FEBRUARY 11, 2015

TOWN OF KNIGHTDALE PROJECT #ZMA-3-14



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**ATTENTION CONTRACTORS**

THE CONSTRUCTION CONTRACTOR RESPONSIBLE FOR THE EXTENSION OF WATER AND SEWER, AS APPROVED IN THESE PLANS, IS RESPONSIBLE FOR CONTACTING THE PUBLIC UTILITIES DEPARTMENT AT (919) 966-4540 AT LEAST 24 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION.

FAILURE TO NOTIFY BOTH CITY DEPARTMENTS IN ADVANCE OF BEGINNING CONSTRUCTION WILL RESULT IN THE ISSUANCE OF MONETARY FINES AND REQUIRE REINSTALLATION OF ANY WATER OR SEWER FACILITIES NOT INSPECTED AS A RESULT OF THIS NOTIFICATION FAILURE.

FAILURE TO CALL FOR INSPECTION, INSTALL A DOWNSTREAM PLUG, HAVE PERMITTED PLANS ON THE JOB SITE, OR ANY OTHER VIOLATION OF CITY OF RALEIGH STANDARDS WILL RESULT IN A FINE AND POSSIBLE EXCLUSION FROM FUTURE WORK IN THE CITY OF RALEIGH.

**PUBLIC WATER DISTRIBUTION/EXTENSION SYSTEM**

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC WATER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH  
PUBLIC UTILITIES DEPARTMENT PERMIT # W-3284  
AUTHORIZATION TO CONSTRUCT [Signature]  
DATE 3/2/15

**TOWN APPROVED STANDARDS SHALL CONTROL.** IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN THESE CONSTRUCTION DRAWINGS AND THE TOWN OF KNIGHTDALE'S APPROVED STANDARDS FOR THIS PROJECT, THE APPROVED STANDARDS SHALL CONTROL. TOWN OF KNIGHTDALE APPROVED STANDARDS SHALL MEAN ALL DEVELOPMENT DOCUMENTS NECESSARY FOR APPROVAL FOR THE PROPERTY INCLUDING, BUT NOT LIMITED TO, ANY SPECIAL USE PERMIT, SUBDIVISION PLAN, SITE PLAN, SUBDIVISION PLAT(S), PHASING SCHEDULE, DEVELOPMENT AGREEMENT, UTILITY ALLOCATION AGREEMENT, ANNEXATION AGREEMENT, THE TOWN OF KNIGHTDALE STANDARD SPECIFICATION AND DETAILS MANUAL AND APPLICABLE PROVISIONS OF THE NORTH CAROLINA STATE BUILDING CODE.

**PROFESSIONAL DESIGN ENGINEER CERTIFICATION.** THESE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING DRAWINGS AND WITH THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

I, Don Miller, PE, CERTIFY THAT THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE HAVE BEEN THOROUGHLY CHECKED AND FOUND TO BE APPLICABLE TO THIS PROJECT. ALL EXCEPTIONS TO THE APPLICABLE TOWN STANDARDS HAVE BEEN PREVIOUSLY APPROVED BY THE TOWN OF KNIGHTDALE AND SAID EXCEPTIONS ARE SHOWN ON SHEETS N/A OF THESE DRAWINGS.

SEAL BY: [Signature]  
DATE: 2/11/15

**TOWN CERTIFICATION.** THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: [Signature] DATE: 2/11/2015  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: [Signature] DATE: 3.11.15  
ADMINISTRATOR

LEGEND		
DESCRIPTION	EXISTING	PROPOSED
1' CONTOUR INTERVAL	---	---
5' CONTOUR INTERVAL	---	---
ACCESSIBLE ROUTE	N/A	---
PROPERTY LINE	---	---
ROADWAY CENTERLINE	---	---
RIGHT OF WAY LIMITS	---	---
EASEMENT LINE	---	---
CURB & GUTTER	---	---
SANITARY SEWER FACILITIES	---	---
STORM SEWER FACILITIES	---	---
WATERLINE	---	---
FIRE HYDRANT ASSEMBLY	---	---
FENCING STRUCTURE	---	---
WOODSLINE	---	N/A
WATERWAYS	---	---
TREE PROTECTION FENCE	N/A	---
# PARKING SPACES	N/A	#
FIBER OPTIC LINE	FO	---

**PROPERTY OWNER**

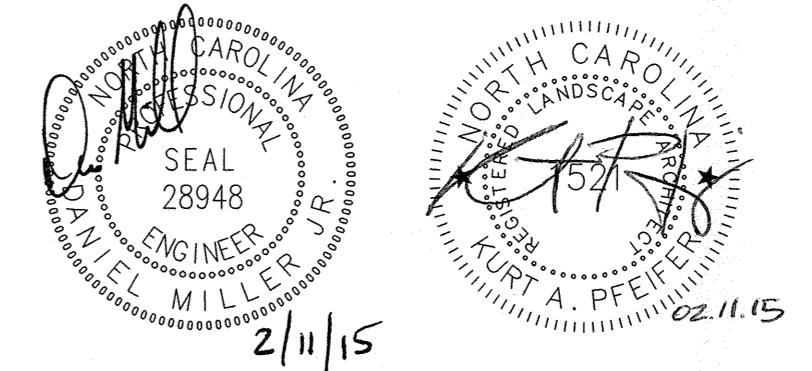
**KNIGHTDALE INVESTORS, LLC.**  
PO BOX 3557  
CARY, NC 27519  
ATTN: THAD MOORE  
PHONE: 919-481-3000  
thad@prestondev.com

**DEVELOPER**

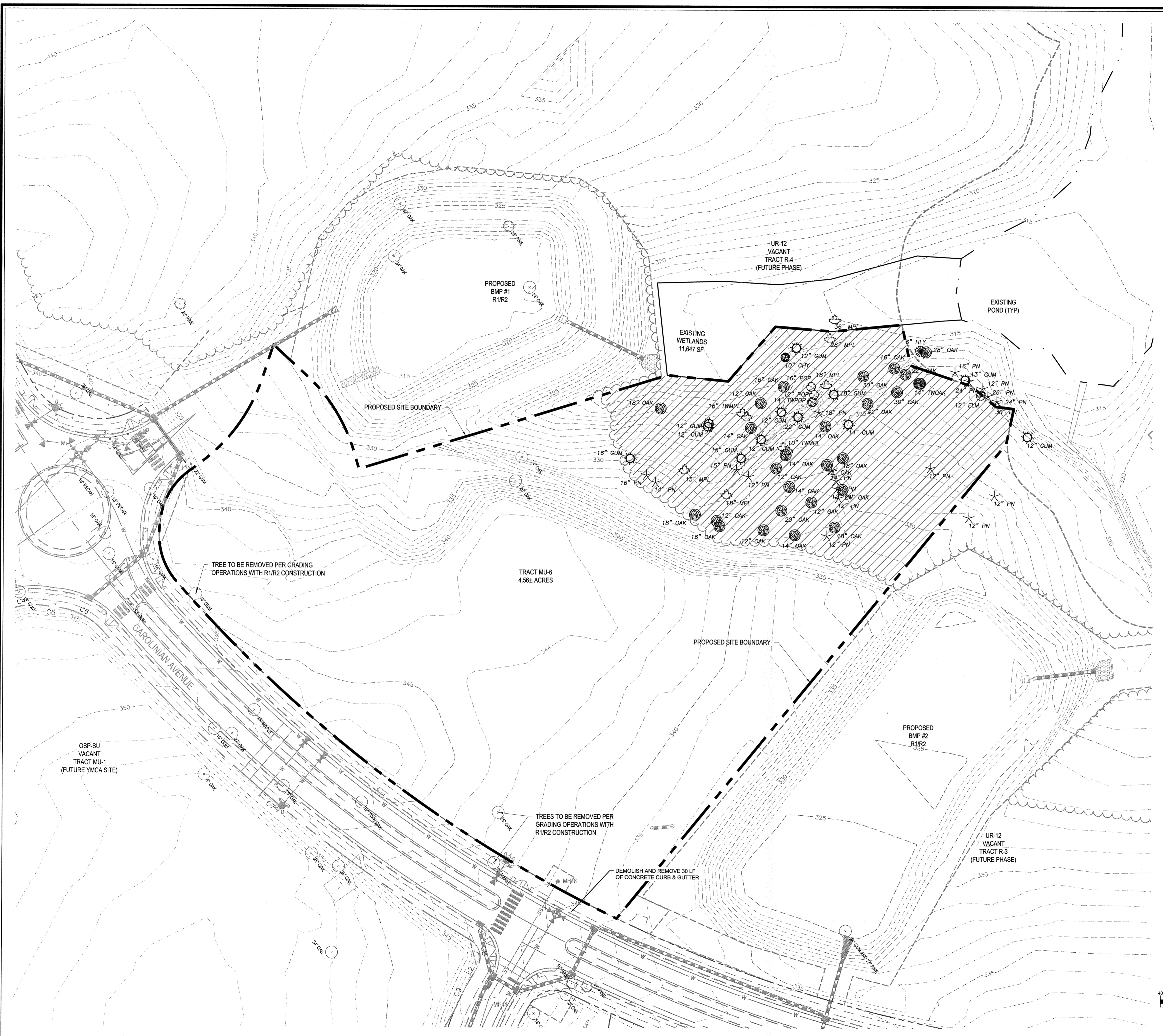
**THALES ACADEMY, INC.**  
4641 PARAGON FORK ROAD  
RALEIGH, NC 27616  
ATTN: MICHAEL ROACH  
PHONE: 919-882-2410  
michael.roach@captiveaire.com

**PREPARED BY:**

**WITHERS & RAVENEL**  
ENGINEERS | PLANNERS | SURVEYORS  
111 MacKenan Drive Cary, North Carolina 27511 tel: 919-469-3340 www.withersravenel.com License No. C-0832



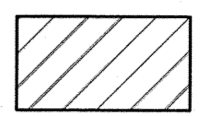




**EXISTING CONDITIONS NOTES**

1. SURVEY DATA PROVIDED BY WITHERS & RAVENEL.
2. THREATENED & ENDANGERED SPECIES AND HISTORIC STRUCTURES DID NOT EXIST ON-SITE AS DETERMINED BY A SITE ASSESSMENT BY A WITHERS & RAVENEL BIOLOGIST. A LETTER DATED NOVEMBER 21, 2013 IS AVAILABLE UPON REQUEST SUMMARIZING THOSE FINDINGS.
3. ROADWAY, UTILITY IMPROVEMENTS, AND PROPOSED GRADING AS SHOWN ON THIS PLAN ARE PROPOSED AS PART OF KNIGHTDALE STATION SUBDIVISION PHASES R1 AND R2.
4. EXISTING FOREST COVER WAS SURVEYED BY WITHERS & RAVENEL, INC. IN JULY 2014.
5. CLEARING IS UNDERWAY FOR R1 & R2 SUBDIVISIONS AND THE BMP'S AND THIS PLAN REFLECTS CLEARING/GRADING PROPOSED ON APPROVED R1/R2 PLANS.

**EXISTING TREE COVERAGE DATA:**

	75% MATURING HARDWOODS CALIPER: 4'-42" HEIGHT: 20'-60' SPECIES: MAPLE, OAK, SWEET GUM, TULIPTREE
	25% MATURING PINE (LOBLOLLY) CALIPER: 4'-24" HEIGHT: 20'-50'

**TREE PROTECTION (UDO SECTION 8.5)**


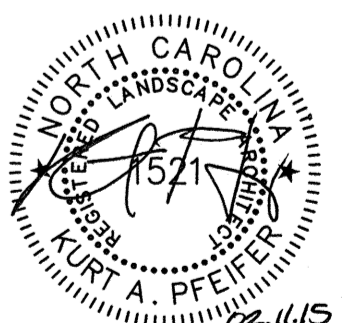
TIER 1 = N/A FOR THE SITE (SEE EXISTING CONDITIONS)

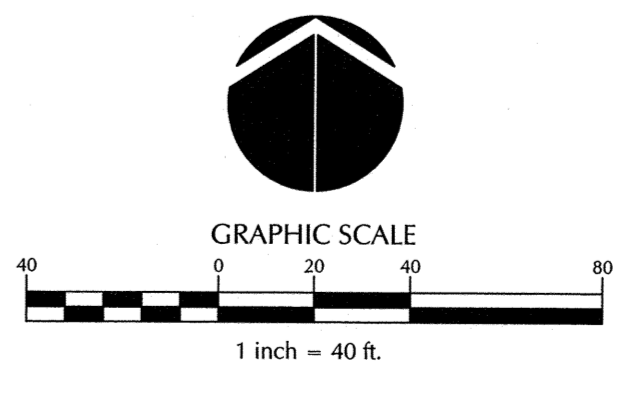
TIER 2 = (17) 12"-24" DBH TREES ON 15% - 25% SLOPES TO BE REMOVED (271 TOTAL CALIPER INCHES)  
271" / 12" = (23) 2" MIN. CALIPER REPLACEMENT TREES REQUIRED (SEE LANDSCAPE)

TIER 3 = (6) TREES > 24" DBH TO BE REMOVED (161 TOTAL CALIPER INCHES)  
161" / 12" = (14) 2" MIN. CALIPER REPLACEMENT TREES REQUIRED (SEE LANDSCAPE)

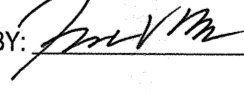
NOTE: CERTAIN TREES (12" AND ABOVE) SHOWN ON EXISTING CONDITIONS PLAN ARE BEING REMOVED PER KNIGHTDALE STATION R-1 & R-2 COLLECTOR ROAD 'B' & BMP GRADING OPERATIONS AND THEREFORE ARE NOT APPLICABLE TO TREE PROTECTION FOR THE THALES PROJECT.

K:\14\14-0100\14102-bhale academy - Knightdale\CD\Construction drawings\C1.0 EXISTING CONDITIONS.dwg - Wednesday, February 11, 2015 3:08:25 PM - PFEIFER, KURT


  




**TOWN CERTIFICATION.** THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY:  DATE: 2/11/2015  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY:  DATE: 3.11.15  
ADMINISTRATOR

No.	Revision	Date	By
1	1st CD Review Comments	12/23/14	KAP
2	Final Plans for Signature	02/11/15	KAP

Designer: W&R  
 Drawn By: TFW  
 Checked By: W&R  
 Scale: 1"=40'  
 Date: 09/15/14  
 Job No.: 02140162

**THALES ACADEMY**  
 Knightdale Wake County North Carolina

**EXISTING CONDITIONS**

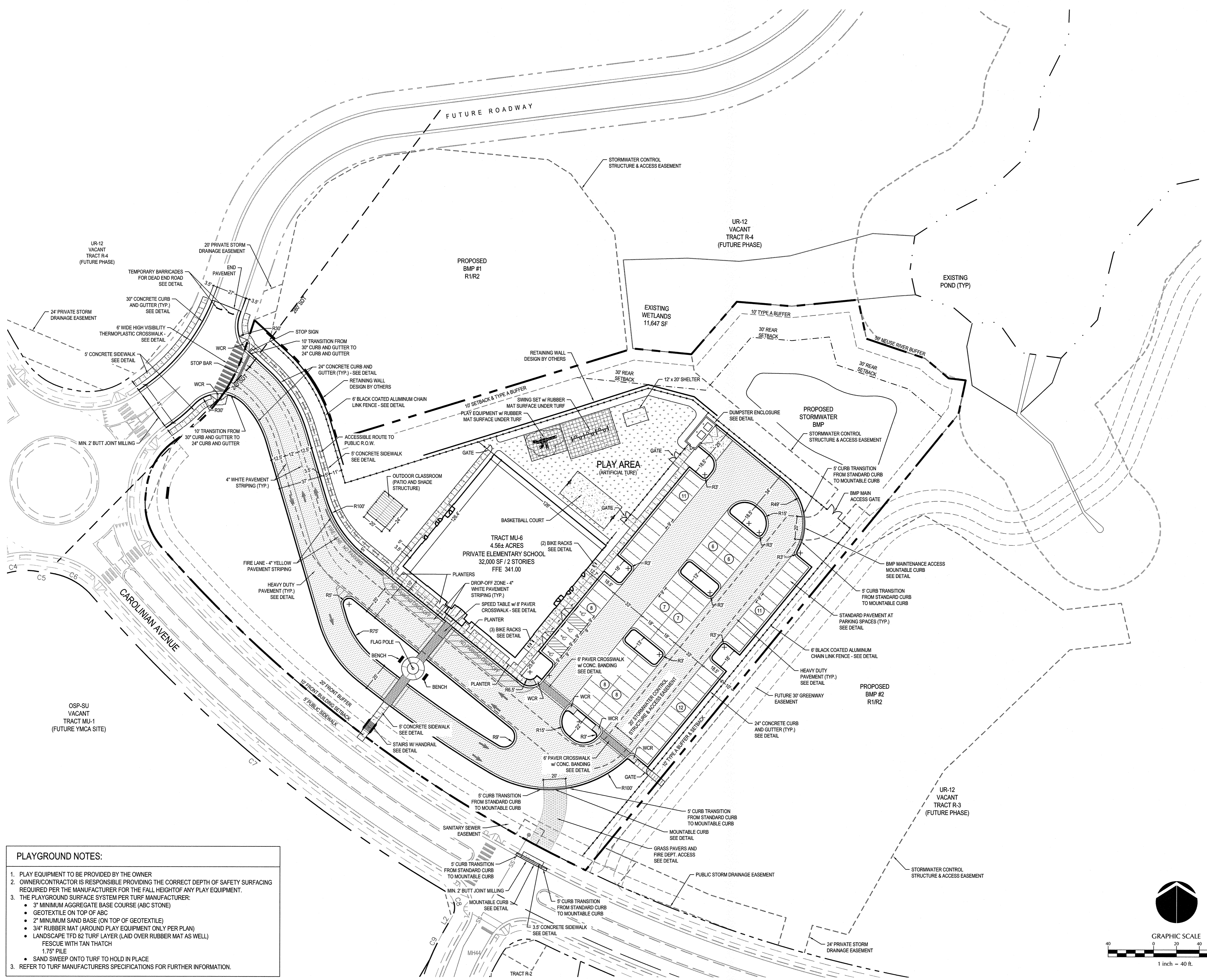
**WITHERS & RAVENEL**  
 ENGINEERS | PLANNERS | SURVEYORS  
 111 MacKenzie Drive Cary, North Carolina 27511 tel: 919-469-3340 www.wITHERSRAVENEL.com License No. C-0832

Sheet No. **C1.0**

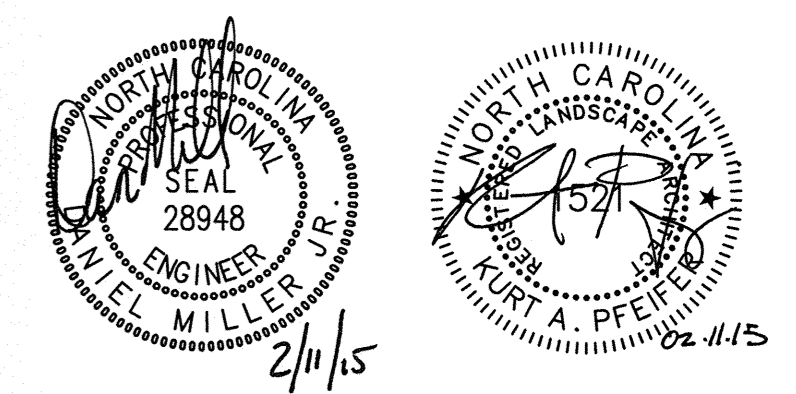
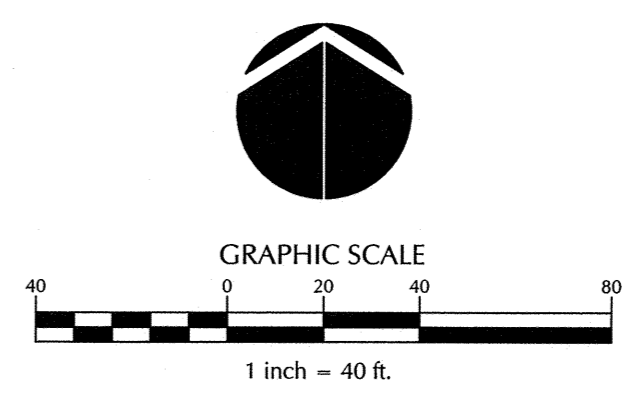


DEVELOPMENT DATA	
PROPERTY DEVELOPER:	THALES ACADEMY, INC 4641 PARAGON PARK ROAD RALEIGH, NC 27616 (919) 862-2410 CONTACT: MICHAEL ROACH
PHONE:	
PROJECT:	SCHOOLS - ELEMENTARY (CONDITIONAL DISTRICT)
PIN:	1754-76-9192
PROJECT ACREAGE:	4.58 ACRES / 198,505.9 SF
CURRENT ZONING:	UR-12 CD
OVERLAY ZONING:	NONE
RIVER BASIN:	NEUSE RIVER BASIN
WATERSHED:	MARKS CREEK WATERSHED
FEMA MAP 3720175400J & 3720176400J:	NO FLOOD ZONES ON SITE
BUILDING SETBACKS REQUIRED:	10' FRONT 10' SIDE (BETWEEN BUILDINGS) 30' REAR
BUILDING HEIGHT:	2 STORIES
BUILDING SQUARE FOOTAGE:	32,000 SF
EXISTING IMPERVIOUS SURFACE:	0%
PROPOSED IMPERVIOUS SURFACE:	95,718.0 SF / 2.20 AC BUILDING: PAVEMENT & SIDEWALK: 79,878.0 SF
PROPOSED TOTAL PROJECT IMPERVIOUS SURFACE:	2.20 ACRES (48.22 %)
TREE CANOPY AREAS ARE NOT REQUIRED SINCE THE SITE IS NOT LOCATED ALONG THE PERIMETER OF THE MASTER PLAN PROPERTY BOUNDARY.	
PARKING REQUIRED:	0.35 SPACES/STUDENT (MAX), 1/2 MIN. STUDENTS (440 STUDENTS) = HANDICAP PARKING: 154 SPACES MAX, 77 SPACES MIN. REQUIRED 4 SPACES
PARKING PROVIDED:	84 SPACES (4 HANDICAP) BICYCLES SPACES REQUIRED: 110 SPACES, 9 BICYCLES SPACES REQUIRED BICYCLES SPACES PROVIDED: 10 SPACES (5 LOOP STYLE RACKS)
900 LF CARPOOL STACKING PROVIDED	

- SITE PLAN NOTES**
- ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH TOWN OF KNIGHTDALE STANDARD SPECIFICATIONS AND DETAILS.
  - SURVEY DATA PROVIDED BY WITHERS & RAVENEL, INC.
  - NO WETLANDS AND/OR STREAM BUFFERS EXIST ON-SITE BASED ON OVERALL KNIGHTDALE STATION DELINEATION AND SURVEY BY WITHERS & RAVENEL, INC.
  - THIS PROPERTY DOES NOT LIE WITHIN THE FEMA FLOODPLAIN PER MAP NUMBER 3720175400J AND 3720176400J, WITH AN EFFECTIVE DATE OF MAY 2, 2006.
  - ROADWAY, UTILITY IMPROVEMENTS, AND PROPOSED GRADING AS SHOWN ON THIS PLAN ARE PROPOSED AS PART OF KNIGHTDALE STATION SUBDIVISION PHASES R1 AND R2.
  - THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE LOCATION OF EXISTING UTILITIES SHOWN ON THE PLANS IS BASED ON THE BEST AVAILABLE INFORMATION, BUT CAN BE CONSIDERED ONLY AS APPROXIMATE.
  - CONSTRUCTION STAKEOUT FOR THIS PROJECT SHALL BE PERFORMED BY THE CONTRACTOR, USING A DIGITAL (CAD) FILE PROVIDED BY THE ENGINEER. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES FOUND BETWEEN THE DIGITAL FILE AND THE CRITICAL STAKING DIMENSIONS SHOWN ON THIS PLAN (I.E. PAVEMENT WIDTHS, CURB RADI, BUILDING SETBACKS, BUILDING FOOTPRINTS, ETC.). ANY MODIFICATIONS MADE BY OTHERS TO THE DIGITAL FILE PROVIDED BY THE ENGINEER SHALL RENDER IT VOID.
  - CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO THE ENGINEER FOR REVIEW AND APPROVAL.
  - CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION CONFERENCE PRIOR TO BEGINNING ANY WORK ON THIS SITE.
  - ALL WRITTEN INFORMATION AND WRITTEN DIMENSIONS SHALL PREVAIL. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER PRIOR TO ATTEMPTING ANY WORK IN THE AREA AFFECTED BY THE DISCREPANCY.
  - FIELD ADJUSTMENTS SHALL BE REVIEWED AND APPROVED BY ENGINEER AND DEVELOPER.
  - ONLY GENERAL BUILDING DIMENSIONS ARE SHOWN, FOR SPECIFIC DIMENSIONS REFER TO ARCHITECTURAL DRAWINGS.
  - THE CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF ALL EXISTING OR PROPOSED PAVEMENT DAMAGED DURING CONSTRUCTION.
  - ALL DIMENSIONS ARE FROM BACK OF CURB TO BACK OF CURB OR TO FACE OF BUILDING WALL OR TO PROPERTY LINE, UNLESS OTHERWISE NOTED.
  - ALL ASPHALT AND CONCRETE WALKS & WALK INTERSECTIONS TO HAVE SMOOTH RADII. NO RAGGED EDGES OR IRREGULAR CURVES WILL BE ACCEPTED.
  - EXPANSION JOINTS IN THE CONCRETE SIDEWALK SHALL BE PLACED EVERY 25' ON CENTER.
  - ALL ACCESSIBLE SIGNAGE SHALL BE IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG).
  - THE SITE SHALL BE STABILIZED AND SEEDDED PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY (C.O.) OR SOONER AS REQUIRED BY THE EROSION CONTROL PLAN.
  - ALL PAVEMENT (TRAFFIC) MARKINGS SHALL BE THERMOPLASTIC, WITH THE EXCEPTION OF PARKING STALL STRIPES WHICH MAY BE SPRAY PAINTED.



- PLAYGROUND NOTES:**
- PLAY EQUIPMENT TO BE PROVIDED BY THE OWNER
  - OWNER/CONTRACTOR IS RESPONSIBLE PROVIDING THE CORRECT DEPTH OF SAFETY SURFACING REQUIRED PER THE MANUFACTURER FOR THE FALL HEIGHT OF ANY PLAY EQUIPMENT.
  - THE PLAYGROUND SURFACE SYSTEM PER TURF MANUFACTURER:
    - 3" MINIMUM AGGREGATE BASE COURSE (ABC STONE)
    - GEOTEXTILE ON TOP OF ABC
    - 2" MINIMUM SAND BASE (ON TOP OF GEOTEXTILE)
    - 3/4" RUBBER MAT (AROUND PLAY EQUIPMENT ONLY PER PLAN)
    - LANDSCAPE TFD 62 TURF LAYER (LAID OVER RUBBER MAT AS WELL) FESCUE WITH TAN THATCH 1.75" PILE
    - SAND SWEEP ONTO TURF TO HOLD IN PLACE
  - REFER TO TURF MANUFACTURERS SPECIFICATIONS FOR FURTHER INFORMATION.



**TOWN CERTIFICATION.** THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

TOWN ENGINEER: *[Signature]* DATE: 2/11/15

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

ADMINISTRATOR: *[Signature]* DATE: 3/11/15

No.	Revision	Date	By	Designer	W&R	Scale
1	1st CD Review Comments	12/23/14	KAP			1"=40'
2	Final Plans for Signature	02/11/15	KAP			
				Drawn By	TFW	09/15/14
				Checked By	W&R	02140162

**THALES ACADEMY**  
Wake County  
North Carolina

**SITE PLAN**

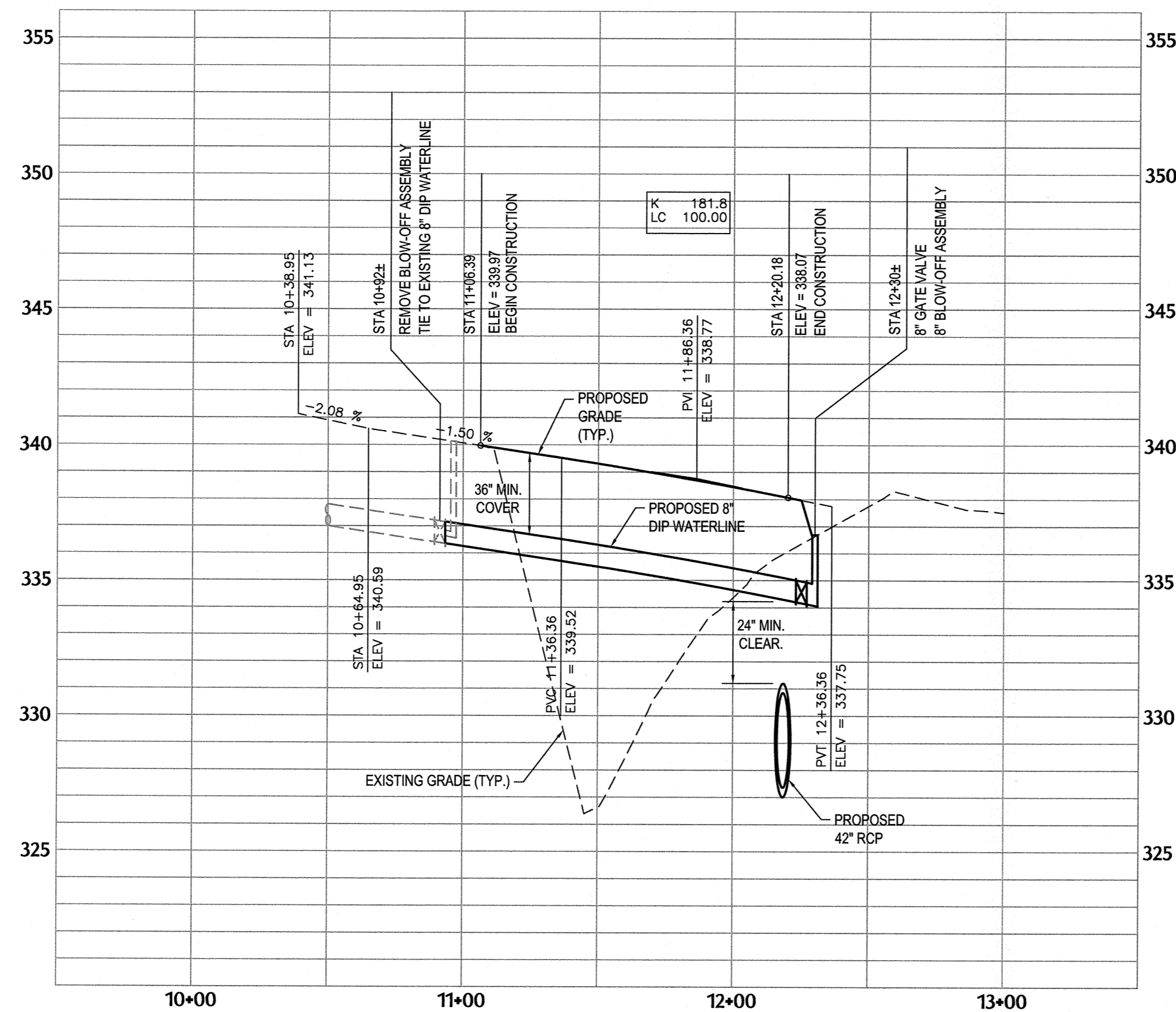
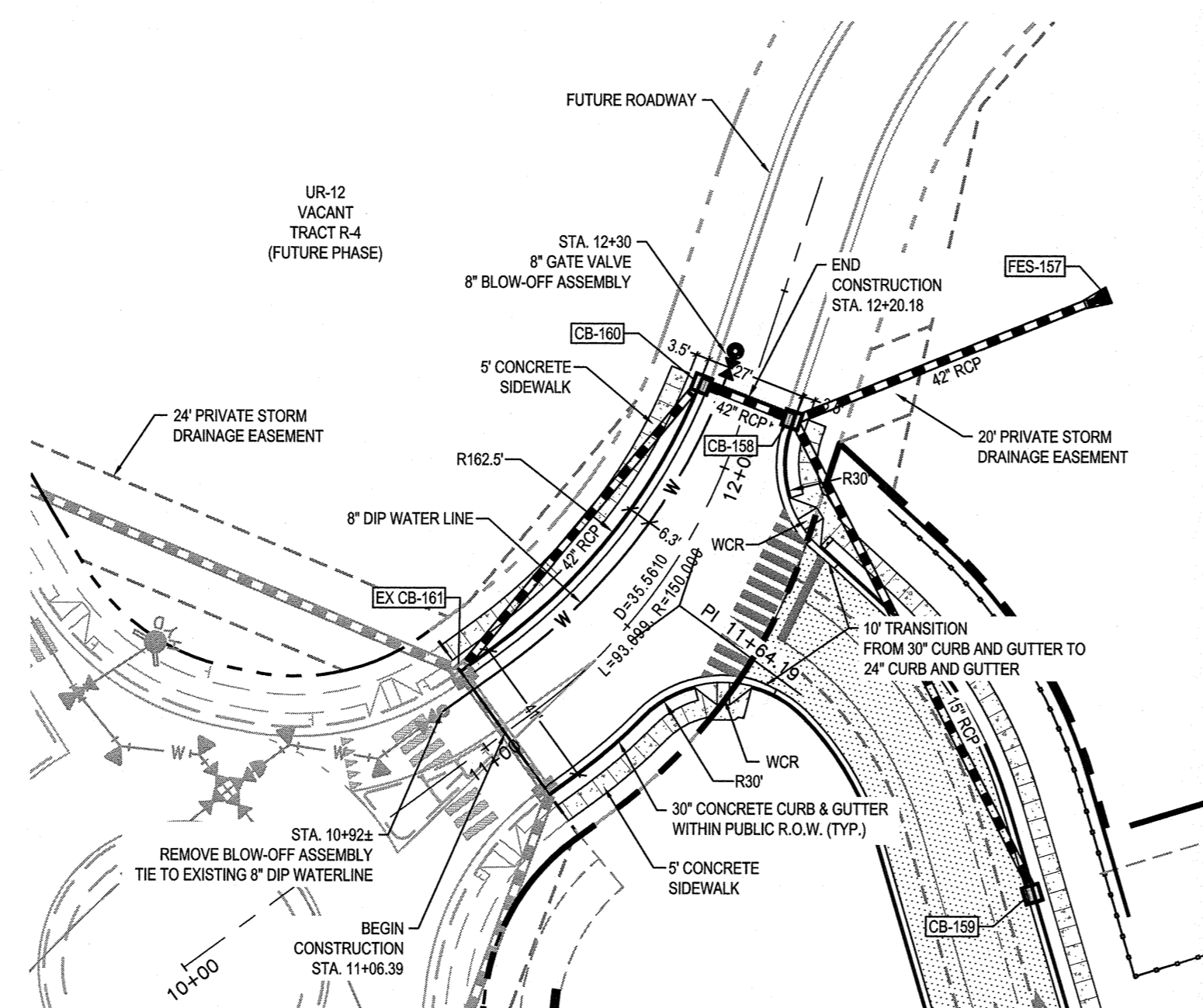
**WITHERS & RAVENEL**  
ENGINEERS | PLANNERS | SURVEYORS

111 MacKenan Drive Cary, North Carolina 27511 tel: 919-469-3340 www.withersravenel.com License No. C-0832

Sheet No. **C2.0**

K:\14-0100\140162-thales academy - knightdale\CD\construction drawings\22.0 SITE PLAN.dwg - Wednesday, February 11, 2015 3:36:42 PM - PFEIFER, KURT





**UTILITY NOTES**

1. THE EXISTING UTILITIES SHOWN ON THE PLANS IS BASED ON THE BEST AVAILABLE INFORMATION, BUT CAN BE CONSIDERED ONLY AS APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS INFORMATION AND UTILITY LOCATIONS PRIOR TO COMMENCEMENT OF WORK ON SITE. ANY POTENTIAL CONFLICTS WITH PROPOSED CONSTRUCTION SHALL BE REPORTED TO THE PROJECT ENGINEER FOR REVIEW PRIOR TO BEGINNING CONSTRUCTION.
2. ROADWAY AND UTILITY IMPROVEMENTS AS SHOWN ON THIS PLAN ARE PROPOSED AS PART OF KNIGHTDALE STATION SUBDIVISION PHASES R1 AND R2. THESE IMPROVEMENTS WILL INCLUDE WATER AND SEWER SERVICES TO SERVE THE YMCA FACILITY AND AQUATICS CENTER.
3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARD SPECIFICATIONS & DETAILS AND WITH ALL APPLICABLE BUILDING AND PLUMBING CODES INCLUDING BACK-FLOW PROVISIONS.
4. CONTRACTOR SHALL CONTACT NC ONE-CALL AT 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION ACTIVITIES.
5. CONTRACTOR TO COORDINATE ALL UTILITY CONNECTIONS WITH THE APPROPRIATE AGENCY, PROVIDER OR OTHER PERTINENT ENTITY.
6. THE CONTRACTOR SHALL NOTIFY THE CITY OF RALEIGH ENGINEERING DEPARTMENT AT 890-3030 TO SCHEDULE CONSTRUCTION INSPECTIONS.
7. FIRE HYDRANTS SHALL BE PAINTED SOLID RED.
8. WHERE STATIC WATER PRESSURE EXCEEDS 80 PSI, A PRESSURE REDUCING VALVE MUST BE INSTALLED AS REQUIRED BY THE NORTH CAROLINA STATE BUILDING CODE. THE PRESSURE REDUCING VALVE WILL BE INSTALLED ON THE BUILDING SERVICE LINE AFTER THE METER.
9. WATER SERVICE PIPE FOR 1/2\"/>

**ATTENTION CONTRACTORS**

THE CONSTRUCTION CONTRACTOR RESPONSIBLE FOR THE EXTENSION OF WATER AND SEWER, AS APPROVED IN THESE PLANS, IS RESPONSIBLE FOR CONTACTING THE PUBLIC UTILITIES DEPARTMENT AT (919) 996-4540 AT LEAST 24 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION.

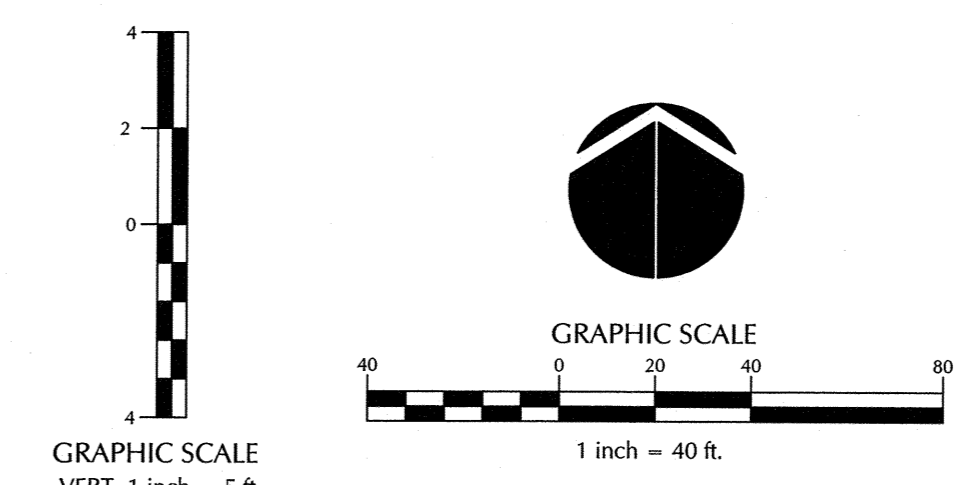
FAILURE TO NOTIFY BOTH CITY DEPARTMENTS IN ADVANCE OF BEGINNING CONSTRUCTION WILL RESULT IN THE ISSUANCE OF MONETARY FINES AND REQUIRE REINSTALLATION OF ANY WATER OR SEWER FACILITIES NOT INSPECTED AS A RESULT OF THIS NOTIFICATION FAILURE.

FAILURE TO CALL FOR INSPECTION, INSTALL A DOWNSTREAM PLUG, HAVE PERMITTED PLANS ON THE JOB SITE, OR ANY OTHER VIOLATION OF CITY OF RALEIGH STANDARDS WILL RESULT IN A FINE AND POSSIBLE EXCLUSION FROM FUTURE WORK IN THE CITY OF RALEIGH.

**PUBLIC WATER DISTRIBUTION/EXTENSION SYSTEM**

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S PUBLIC WATER SYSTEM AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK.

CITY OF RALEIGH  
PUBLIC UTILITIES DEPARTMENT PERMIT # W-3284  
AUTHORIZATION TO CONSTRUCT  
DATE 3/2/15



TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: DATE: 2/11/2015

TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: DATE: 3.11.15

ADMINISTRATOR

K:\1\1\1\0\100\140702-1040e-academy - knightdale (CAD) construction drawings\C2.1 FUTURE ROADWAY PLAN AND PROFILE.dwg - Wednesday, February 11, 2015 4:43:18 PM - PEETER, KURT

No.	Revision	Date	By
1	1st CD Review Comments	12/23/14	KAP
2	Final Plans for Signature	02/11/15	KAP

Designer	W&R	Scale	AS NOTED
Drawn By	TFW	Date	09/15/14
Checked By	W&R	Job No.	02140162

**THALES ACADEMY**  
 Knightdale Wake County North Carolina

**FUTURE ROADWAY PLAN AND PROFILE**

**WITHERS & RAVENEL**  
 ENGINEERS | PLANNERS | SURVEYORS  
 111 MacKenzie Drive Cary, North Carolina 27511 Tel: 919-469-3340 www.withersravenel.com License No. C-0832

Sheet No.  
**C2.1**



STRUCTURE SCHEDULE			
STRUCTURE	RIM	SUMP ELEVATION	STRUCTURE DEPTH
CB-101	333.25	328.85	4.40
CB-102	335.96	331.65	4.31
CB-103	337.26	333.00	4.26
FES-100	329.58	326.00	3.58

PIPE SCHEDULE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	SIZE (IN)	LENGTH (FT)	SLOPE	MATERIAL
CB-102	CB-101	331.65	329.10	18	118	2.16%	RCP
CB-103	CB-102	333.00	331.75	18	163	0.77%	RCP
CB-101	FES-100	328.85	326.00	18	99	2.87%	RGRCP

STRUCTURE SCHEDULE			
STRUCTURE	RIM	SUMP ELEVATION	STRUCTURE DEPTH
FES-200	329.29	326.00	3.29
YI-201	336.50	328.00	8.50

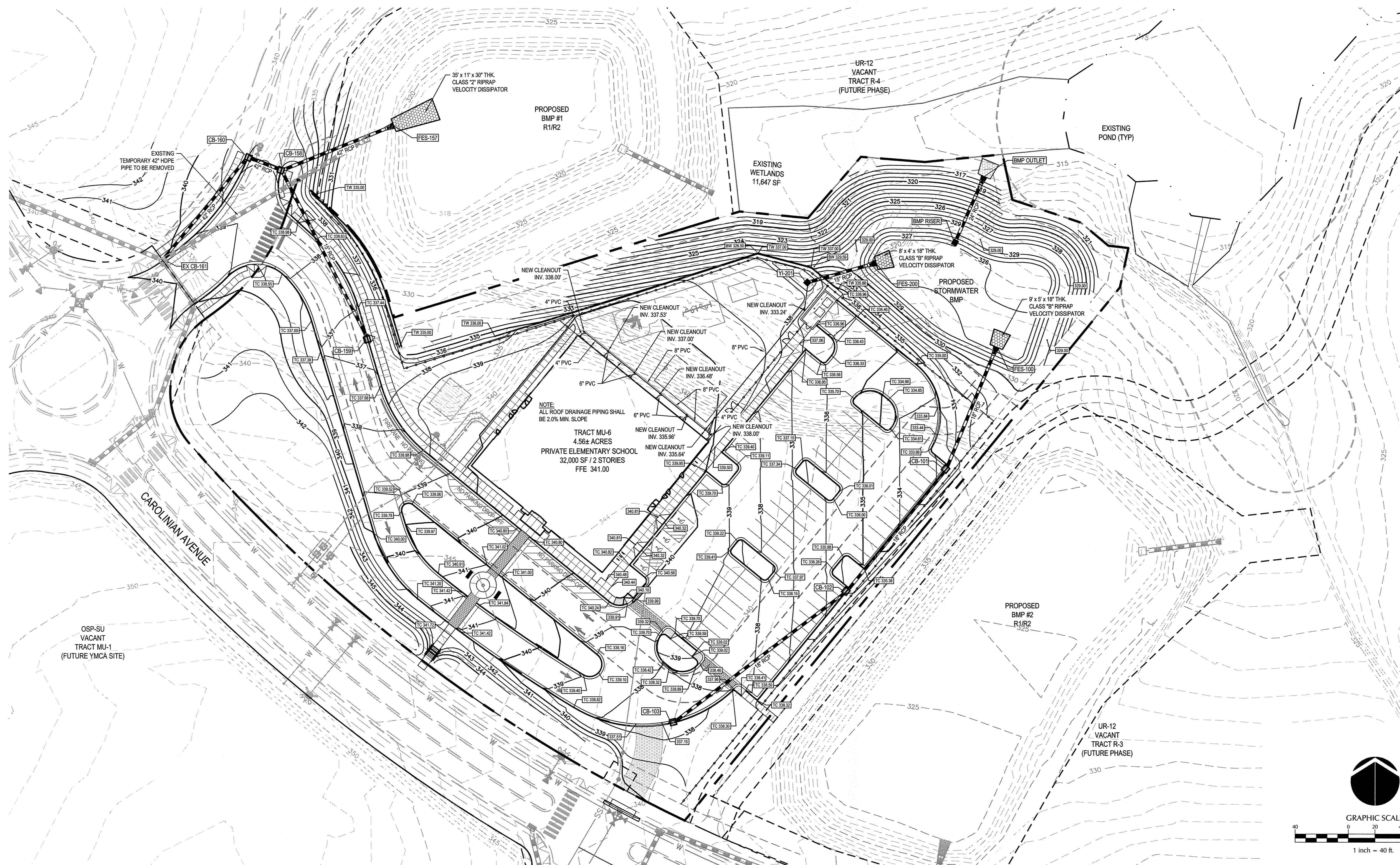
PIPE SCHEDULE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	SIZE (IN)	LENGTH (FT)	SLOPE	MATERIAL
YI-201	FES-200	328.00	326.00	15	54	3.73%	RGRCP

STRUCTURE SCHEDULE			
STRUCTURE	RIM	SUMP ELEVATION	STRUCTURE DEPTH
CB-158	338.25	327.16	11.09
CB-159	336.92	332.60	4.32
CB-160	338.25	327.40	10.85
EX CB-161	340.02	328.65	11.37
FES-157	327.79	322.00	5.79

PIPE SCHEDULE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	SIZE (IN)	LENGTH (FT)	SLOPE	MATERIAL
CB-159	CB-158	332.60	329.41	15	142	2.25%	RCP
CB-160	CB-158	327.40	327.26	42	27	0.51%	RCP
EX CB-161	CB-160	328.65	327.50	42	100	1.15%	RCP
CB-158	FES-157	327.16	322.00	42	91	5.69%	RGRCP

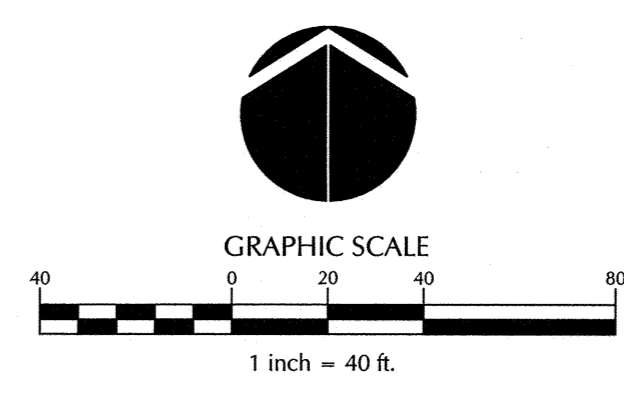
**GRADING & DRAINAGE NOTES:**

- ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH TOWN OF KNIGHTDALE STANDARD SPECIFICATIONS AND DETAILS.
- SURVEY DOTS PROVIDED BY WITHERS & RAVENEL, INC.
- NO WETLANDS AND/OR STREAM BUFFERS EXIST ON-SITE BASED ON OVERALL KNIGHTDALE STATION DELINEATION AND SURVEY BY WITHERS & RAVENEL, INC.
- THIS PROPERTY DOES NOT LIE WITHIN THE FEMA FLOODPLAIN PER MAP NUMBER 3720175400J AND 3720178400J, WITH AN EFFECTIVE DATE OF MAY 2, 2006.
- RECEIVING WATERCOURSE: UNNAMED TRIBUTARY OF MARKS CREEK IN THE NEUSE RIVER BASIN.
- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE LOCATION OF EXISTING UTILITIES SHOWN ON THE PLANS IS BASED ON THE BEST AVAILABLE INFORMATION, BUT CAN BE CONSIDERED ONLY AS APPROXIMATE.
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- ENERGY DISSIPATORS SHALL BE INSTALLED AT ALL STORM SEWER DISCHARGE POINTS. A FABRIC OR WASHED STONE BARRIER SHALL BE INSTALLED BETWEEN THE DISSIPATION PAD AND THE NATURAL GROUND.
- STORM PIPE TRENCH EXCAVATION AND BACKFILLING SHALL BE PERFORMED IN ACCORDANCE WITH TOWN OF KNIGHTDALE STANDARD SPECIFICATIONS AND DETAILS.
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- GRAVEL CONSTRUCTION ENTRANCE PADS SHALL BE CONSTRUCTED AT EACH POINT OF CONSTRUCTION ACCESS TO EACH PROPERTY. NOTE: IT SHALL BE THE DEVELOPER'S RESPONSIBILITY TO SEE THAT THE CONSTRUCTION ENTRANCE PADS ARE PROPERLY MAINTAINED SO THAT MUD IS NOT TRACKED ONTO ADJACENT STREETS. IN THE EVENT THAT THE GRAVEL CONSTRUCTION ENTRANCES ARE NOT PROPERLY MAINTAINED, OR ARE OTHERWISE INEFFECTIVE, THE TOWN REPRESENTATIVE MAY ISSUE A STOP WORK ORDER OR ANY OTHER EQUITABLE REMEDY PROVIDED BY THE TOWN OF KNIGHTDALE UDO OR NC GENERAL STATUTES. THE STOP WORK ORDER SHALL REMAIN IN EFFECT UNTIL SUCH TIME AS THE PADS ARE RESTORED AND REPLENISHED AND UNTIL ANY RESULTING MUD AND DEBRIS HAS BEEN REMOVED FROM THE ADJACENT STREETS BY THE CONTRACTOR.
- TO MINIMIZE DAMAGE TO EXISTING TREES NEAR THE INTERIOR EDGE OF BUFFERS AND STREETSCAPES, THE CONTRACTOR SHALL CUT MINIMUM 2' TRENCHES ALONG LIMITS OF DISTURBANCE, SO AS TO CUT, RATHER THAN TEAR, ROOTS.
- THE TREE PROTECTION FENCE SHALL BE MAINTAINED ON THE SITE UNTIL ALL SITE WORK IS COMPLETED AND THE FINAL SITE INSPECTION PRIOR TO THE CERTIFICATE OF OCCUPANCY (CO) IS SCHEDULED. THE FENCING SHALL BE REMOVED PRIOR TO FINAL SITE INSPECTION FOR THE CO.
- THE PROJECT WILL MEET ALL THE REQUIREMENTS RELATIVE TO THE BEST MANAGEMENT PRACTICES AND ENGINEERED STORMWATER CONTROL STRUCTURES AS OUTLINED IN THE TOWN OF KNIGHTDALE STANDARD SPECIFICATIONS AND DETAILS MANUAL (CHAPTER 6 SECTION 6.3).
- CONTRACTOR SHALL INSTALL PROPER EROSION CONTROL MEASURES TO ENSURE THAT SEDIMENTATION DURING LOT CLEARING WILL BE MINIMIZED.
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- CONTRACTOR SHALL CONSTRUCT DIVERSION DITCHES AS NECESSARY TO ENSURE ALL SEDIMENT IS DIRECTED INTO EROSION CONTROL MEASURES.
- TOPSOIL SHALL BE WASTED OFF-SITE OR AT APPROVED STOCKPILE AREA ON SITE.
- ALL STORM DRAINAGE PIPE SHALL BE PROTECTED DURING CONSTRUCTION IN ACCORDANCE WITH TOWN OF KNIGHTDALE DETAILS AND SPECIFICATIONS.
- CONTRACTOR SHALL PROVIDE RIP RAP DISSIPATOR PADS AT STORM DRAINAGE PIPE DISCHARGE POINTS AS REQUIRED TO ENSURE POSITIVE DRAINAGE.
- ALL CLEARING LIMITS SHALL BE CLEARLY IDENTIFIED AND STAKED PRIOR TO ANY CONSTRUCTION. THE TOWN SHALL BE GIVEN 24-HOUR NOTICE PRIOR TO BEGINNING CLEARING OPERATIONS.
- ALL EARTHWORK SHALL BE COMPLETED IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE STANDARD SPECIFICATIONS AND CONSTRUCTION DETAILS MANUAL (SECTION 2.05) 28. STABILIZATION SHALL BE IN ACCORDANCE WITH NPDES STORMWATER DISCHARGE PERMIT (SEE TABLE ON EC DETAILS SHEET).
- CB IS CATCH BASIN WITH CURB INLET, RIM = TOP OF CURB
- MH IS MANHOLE, RIM = TOP OF COVER.
- YI IS CATCH BASIN WITH YARD INLET, RIM = GRATE ELEVATION.
- RCP IS REINFORCED CONCRETE PIPE.
- "RGRCP" IS RUBBER GASKETED REINFORCED CONCRETE PIPE.
- ALL RCP PIPE IS CLASS III UNLESS OTHERWISE NOTED.
- RCPWV IS CLASS IV REINFORCE CONCRETE PIPE.
- ALL CB AND YI WILL RECEIVE WIRE MESH AND GRAVEL INLET PROTECTION.



**LEGEND**

- TOP OF WALL SPOT ELEVATION
- BOTTOM OF WALL SPOT ELEVATION
- TOP OF CURB SPOT ELEVATION
- FINISHED GRADE SPOT ELEVATION
- EXISTING STORM DRAINAGE
- PROPOSED STORM DRAINAGE



**TOWN CERTIFICATION.** THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

TOWN ENGINEER: *[Signature]* DATE: 2/11/15

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

ADMINISTRATOR: *[Signature]* DATE: 3/11/15

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No.	Revision	Date	By
1	1st CD Review Comments	12/23/14	KAP
2	Final Plans for Signature	02/11/15	KAP

Designer	W&R	Scale	1"=40'
Drawn By	TFW	Date	09/15/14
Checked By	W&R	Job No.	02140162

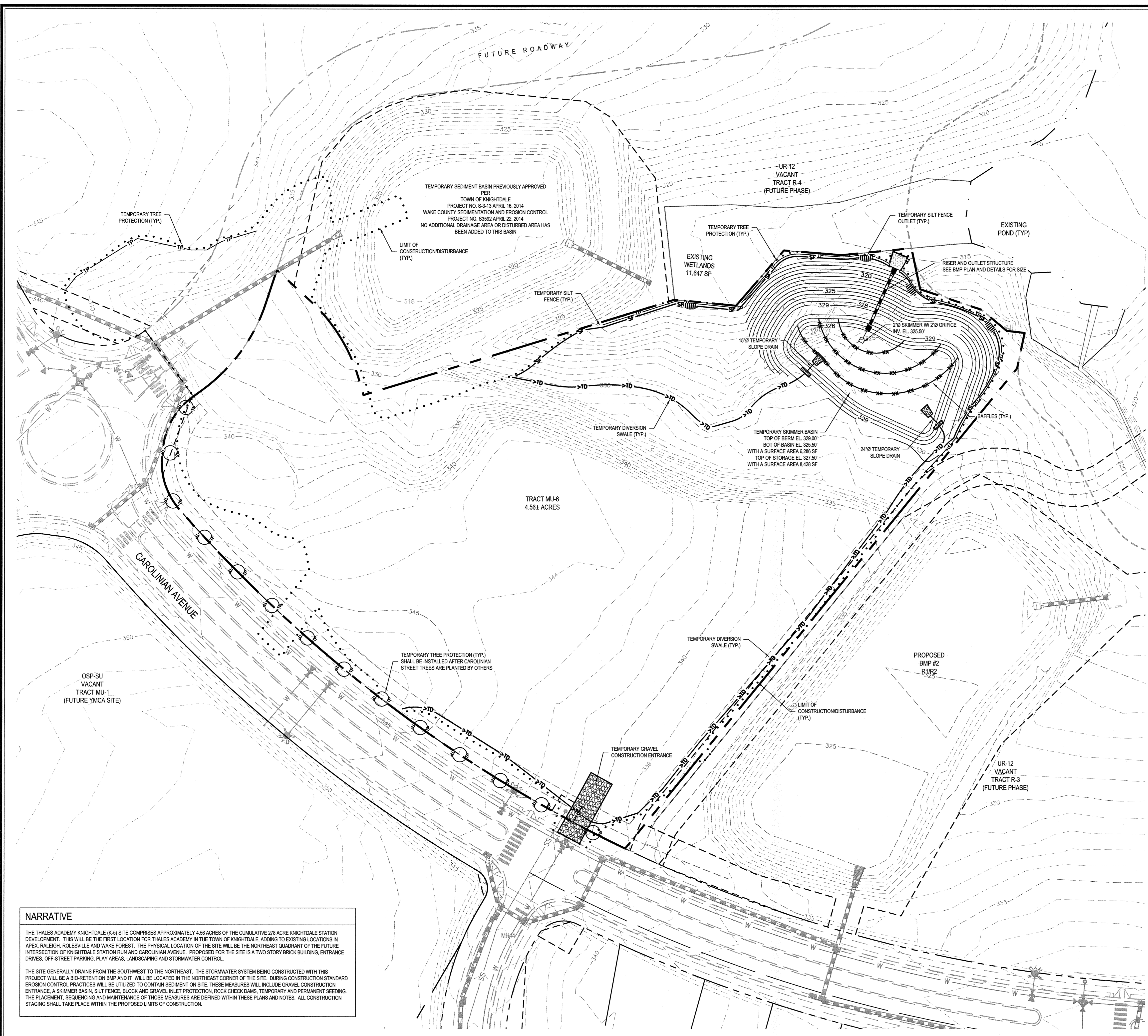
**THALES ACADEMY**  
Wake County North Carolina

**GRADING & DRAINAGE PLAN**

**WITHERS & RAVENEL**  
ENGINEERS | PLANNERS | SURVEYORS  
111 MacKen Drive Cary, North Carolina 27511 tel: 919-469-3340 www.wITHERSRAVENEL.com License No. C-0832

Sheet No. **C3.0**





- ### EROSION CONTROL NOTES
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  15. THE TREE PROTECTION FENCE SHALL BE MAINTAINED ON THE SITE UNTIL ALL SITE WORK IS COMPLETED AND THE FINAL SITE INSPECTION PRIOR TO THE CERTIFICATE OF OCCUPANCY (CO) IS SCHEDULED. THE FENCING SHALL BE REMOVED PRIOR TO FINAL SITE INSPECTION FOR THE CO.
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  25. ALL EARTHWORK SHALL BE COMPLETED IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE STANDARD SPECIFICATIONS AND CONSTRUCTION DETAILS MANUAL, SECTION 2.0(2) & 2.0(3). STABILIZATION SHALL BE IN ACCORDANCE WITH NPDES STORMWATER DISCHARGE PERMIT (SEE TABLE ON EC DETAILS SHEET).

- ### PHASE 1 CONSTRUCTION SEQUENCE
1. SCHEDULE A PRECONSTRUCTION CONFERENCE WITH THE WATERSHED MANAGER, DEBRA RYALS (919-842-7142), OBTAIN A LAND-DISTURBING PERMIT.
  2. INSTALL GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, OR OTHER MEASURES AS SHOWN ON THE APPROVED PLAN. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS, AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
  3. CALL 919-856-5706 FOR AN ON-SITE INSPECTION BY THE WATERSHED MANAGER TO OBTAIN A CERTIFICATE OF COMPLIANCE.
  4. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. WHEN COMPLETE, BEGIN PHASE 2 EROSION CONTROL SEQUENCE.

### EROSION CONTROL LEGEND

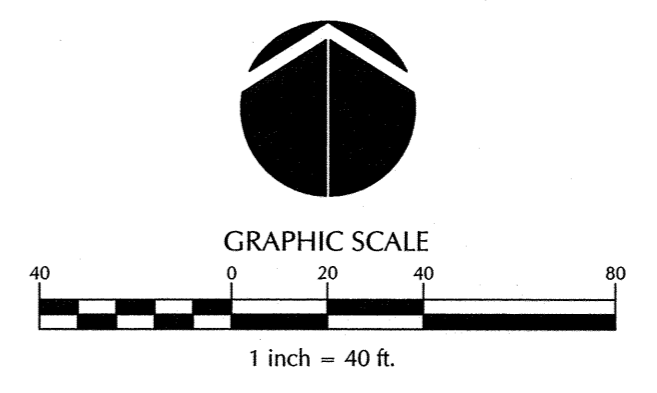
TREE PROTECTION FENCE	TP
SILT FENCE	SF
DIVERSION SWALE	>TD
CONSTRUCTION ENTRANCE	[Symbol]
CONSTRUCTION LIMIT	[Symbol]
SILT FENCE OUTLET	[Symbol]
SLOPE DRAIN	[Symbol]
INLET PROTECTION	[Symbol]

### GROUND STABILIZATION

SITE AREA	STABILIZATION TIME FRAME	STABILIZATION FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES FLATTER THAN 3:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

Extensions of time may be approved by the permitting authority based on weather or other site-specific conditions that make compliance impracticable. (Section 11.B(2)(b))

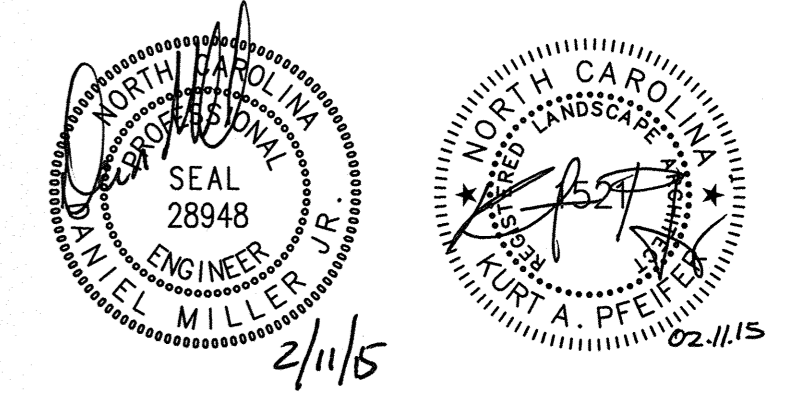
DISTURBED AREA = 4.70 ACRES



### NARRATIVE

THE THALES ACADEMY KNIGHTDALE (K-6) SITE COMPRISES APPROXIMATELY 4.56 ACRES OF THE CUMULATIVE 278 ACRE KNIGHTDALE STATION DEVELOPMENT. THIS WILL BE THE FIRST LOCATION FOR THALES ACADEMY IN THE TOWN OF KNIGHTDALE, ADDING TO EXISTING LOCATIONS IN APEX, RALEIGH, ROLESVILLE AND WAKE FOREST. THE PHYSICAL LOCATION OF THE SITE WILL BE THE NORTHEAST QUADRANT OF THE FUTURE INTERSECTION OF KNIGHTDALE STATION RUN AND CAROLINIAN AVENUE. PROPOSED FOR THE SITE IS A TWO STORY BRICK BUILDING, ENTRANCE DRIVES, OFF-STREET PARKING, PLAY AREAS, LANDSCAPING AND STORMWATER CONTROL.

THE SITE GENERALLY DRAINS FROM THE SOUTHWEST TO THE NORTHEAST. THE STORMWATER SYSTEM BEING CONSTRUCTED WITH THIS PROJECT WILL BE A BIO-RETENTION BMP AND IT WILL BE LOCATED IN THE NORTHEAST CORNER OF THE SITE. DURING CONSTRUCTION STANDARD EROSION CONTROL PRACTICES WILL BE UTILIZED TO CONTAIN SEDIMENT ON SITE. THESE MEASURES WILL INCLUDE GRAVEL CONSTRUCTION ENTRANCE, A SKIMMER BASIN, SILT FENCE, BLOCK AND GRAVEL INLET PROTECTION, ROCK CHECK DAMS, TEMPORARY AND PERMANENT SEEDING. THE PLACEMENT, SEQUENCING AND MAINTENANCE OF THESE MEASURES ARE DEFINED WITHIN THESE PLANS AND NOTES. ALL CONSTRUCTION STAGING SHALL TAKE PLACE WITHIN THE PROPOSED LIMITS OF CONSTRUCTION.



**TOWN CERTIFICATION.** THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: *[Signature]* DATE: 2/1/15  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: *[Signature]* DATE: 3/11/15  
ADMINISTRATOR

No.	Revision	Date	By
1	1st CD Review Comments	12/23/14	KAP
2	Final Plans for Signature	02/11/15	KAP

Designer	W&R	Scale	1"=40'
Drawn By		Date	09/15/14
Checked By	TFW	Job No.	02140162
	W&R		

**THALES ACADEMY**  
Wake County  
Knightdale North Carolina

**PHASE 1 EROSION CONTROL PLAN**

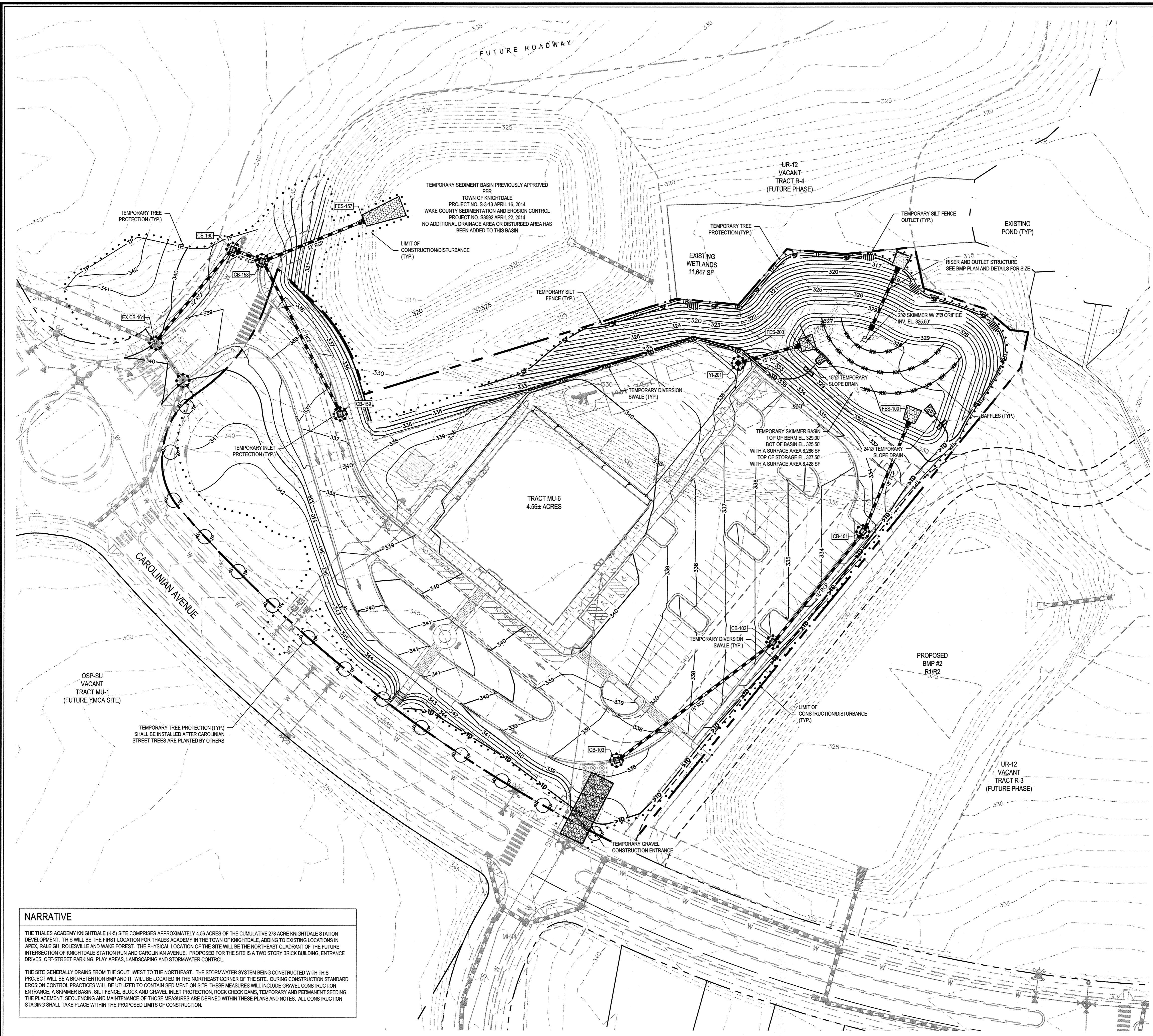
**WITHERS & RAVENEL**  
ENGINEERS | PLANNERS | SURVEYORS

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Sheet No. **C4.0**

K:\14\14-0162\140162-thales academy - knightdale\CD\construction drawings\C4.0 PHASE 1 EROSION CONTROL PLAN.dwg - Wednesday, February 11, 2015 3:30:22 PM - PFEIFFER, KURT





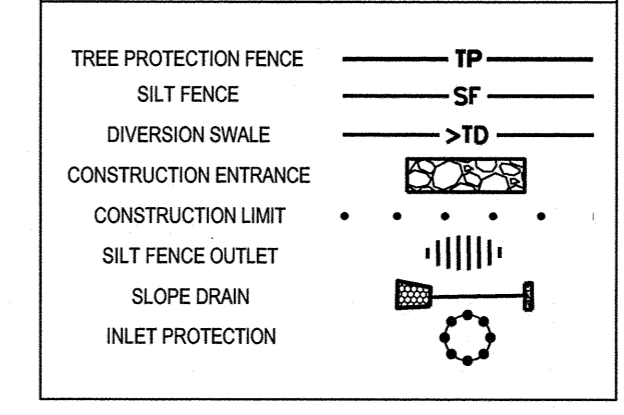
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**CONSTRUCTION SEQUENCE**

1. ROUGH GRADE SITE.
2. ADJUST TEMPORARY DIVERSIONS AS ROUGH GRADING PROGRESSES.
3. BEGIN CONSTRUCTION, UTILITIES, BUILDING, ETC. STORM SEWER INLETS, IF SHOWN, SHALL BE PROTECTED WITH BLOCK AND GRAVEL INLET CONTROLS, SEDIMENT TRAPS, OR OTHER APPROVED MEASURES AS SHOWN ON THE PLAN.
4. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC.
5. THE CONTRACTOR SHALL INSPECT AND MAINTAIN THE EROSION CONTROL MEASURES ON A DAILY BASIS.
6. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL 919-942-7142 FOR AN INSPECTION BY THE WATERSHED MANAGER.
7. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, ETC., AND SEED OUT ANY RESULTING BARE AREAS. CONVERT SKIMMER BASIN TO A BIOTENTION POND, REMOVE SKIMMER AND INSTALL PERMANENT RISER COMPONENTS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED. THE ENTIRE DRAINAGE AREA CONTRIBUTING TO THE BIOTENTION BASIN MUST BE COMPLETELY STABILIZED PRIOR TO THE CONVERSION OF THE DEVICE FROM EROSION CONTROL DEVICE TO THE PERMANENT BIOTENTION BASIN.
8. AFTER BIOTENTION CONVERSION AND WHEN VEGETATION HAS BECOME ESTABLISHED, CALL THE TOWN OF KNIGHTDALE FOR FINAL INSPECTION. OBTAIN A CERTIFICATE OF COMPLETION.

**EROSION CONTROL LEGEND**



**GROUND STABILIZATION**

DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES FLATTER THAN 3:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

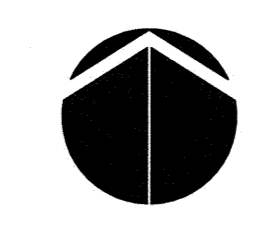
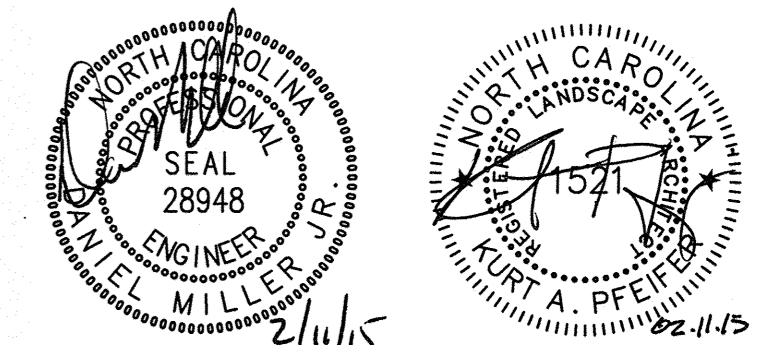
Extensions of time may be approved by the permitting authority based on weather or other site-specific conditions that make compliance impracticable. (Section 11.B(2)(b))

**DISTURBED AREA = 4.70 ACRES**

**NARRATIVE**

THE THALES ACADEMY KNIGHTDALE (K-5) SITE COMPRISES APPROXIMATELY 4.56 ACRES OF THE CUMULATIVE 278 ACRE KNIGHTDALE STATION DEVELOPMENT. THIS WILL BE THE FIRST LOCATION FOR THALES ACADEMY IN THE TOWN OF KNIGHTDALE, ADDING TO EXISTING LOCATIONS IN APEX, RALEIGH, ROLESVILLE AND WAKES FOREST. THE PHYSICAL LOCATION OF THE SITE WILL BE THE NORTHEAST QUADRANT OF THE FUTURE INTERSECTION OF KNIGHTDALE STATION RUN AND CAROLINIAN AVENUE. PROPOSED FOR THE SITE IS A TWO STORY BRICK BUILDING, ENTRANCE DRIVES, OFF-STREET PARKING, PLAY AREAS, LANDSCAPING AND STORMWATER CONTROL.

THE SITE GENERALLY DRAINS FROM THE SOUTHWEST TO THE NORTHEAST. THE STORMWATER SYSTEM BEING CONSTRUCTED WITH THIS PROJECT WILL BE A BIO-RETENTION BMP AND IT WILL BE LOCATED IN THE NORTHEAST CORNER OF THE SITE. DURING CONSTRUCTION STANDARD EROSION CONTROL PRACTICES WILL BE UTILIZED TO CONTAIN SEDIMENT ON SITE. THESE MEASURES WILL INCLUDE GRAVEL CONSTRUCTION ENTRANCE, A SKIMMER BASIN, SILT FENCE, BLOCK AND GRAVEL INLET PROTECTION, ROCK CHECK DAMS, TEMPORARY AND PERMANENT SEEDING. THE PLACEMENT, SEQUENCING AND MAINTENANCE OF THOSE MEASURES ARE DEFINED WITHIN THESE PLANS AND NOTES. ALL CONSTRUCTION STAGING SHALL TAKE PLACE WITHIN THE PROPOSED LIMITS OF CONSTRUCTION.



**TOWN CERTIFICATION.** THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

TOWN ENGINEER: *[Signature]* DATE: 2/11/15

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

ADMINISTRATOR: *[Signature]* DATE: 3/11/15

No.	Revision	Date	By
1	1st CD Review Comments	12/23/14	KAP
2	Final Plans for Signature	02/11/15	KAP

Designer	W&R	Scale	1"=40'
Drawn By	TFW	Date	09/15/14
Checked By	W&R	Job No.	02140162

**THALES ACADEMY**

Wake County North Carolina

**PHASE 2 EROSION CONTROL PLAN**

**WITHERS & RAVENEL**  
ENGINEERS | PLANNERS | SURVEYORS

111 MacKenzie Drive Cary, North Carolina 27511 tel: 919-469-3340 www.wITHERSRAVENEL.COM License No. C-0832

Sheet No. **C4.1**

K:\14-0160\140162-thales academy - knightdale\CD\construction drawings\CA-1 PHASE 2 EROSION CONTROL PLAN.dwg - Wednesday, February 11, 2015 3:26:32 PM - PFEIFER, KURT











**STANDARD 2'-6" CURB AND GUTTER**

**1'-6" STANDARD CURB AND GUTTER**

**2'-0" STANDARD CURB & GUTTER**

**SLOPE FOR VARIABLE SUPER ELEVATION RATES**

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS      CURB AND GUTTER      1 of 3 STD. NO. 4.01

**TRANSVERSE EXPANSION JOINT**

**NOTES:**

- CONTRACTION JOINTS SHALL BE SPACED AT 10-FOOT INTERVALS. JOINT SPACING MAY BE ALTERED BY THE ENGINEER TO PREVENT UNCONTROLLED CRACKING.
- CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS, WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM DEPTH OF 1-1/2" SHALL BE OBTAINED.
- ALL EXPANSION JOINTS SHALL BE SPACED AT 90-FOOT INTERVALS, AND ADJACENT TO ALL RIGID OBJECTS. JOINTS SHALL MATCH LOCATIONS WITH JOINTS IN ABUTTING SIDEWALK.
- CONCRETE COMPRESSIVE STRENGTH SHALL BE 3600 PSI IN 28 DAYS.
- CURB SHALL BE DEPRESSED AT INTERSECTIONS TO PROVIDE FOR FUTURE ACCESSIBLE RAMPS.
- TOP 6" OF SUBGRADE BENEATH THE CURB AND GUTTER SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS      CURB AND GUTTER      3 of 3 STD. NO. 4.01

**1'-6" MEDIAN CURB AND GUTTER**  
TO BE USED IN MEDIANS WHEN LANES ARE SLOPED FROM ISLAND OR AS SPECIFIED BY THE TOWN ENGINEER.

**1'-6" MOUNTABLE CURB AND GUTTER**  
TO BE USED IN MEDIANS ONLY WHEN SPECIFIED BY THE TOWN ENGINEER.

**1'-6" BINDER CURB**  
TO BE USED IN ALLEYS ONLY WHEN SPECIFIED BY THE TOWN ENGINEER.

**1'-6" STANDARD CURB AND GUTTER**

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS      CURB AND GUTTER      2 of 3 STD. NO. 4.01

**GROOVE JOINT IN SIDEWALK**

**TRANSVERSE EXPANSION JOINT IN SIDEWALK**

**NOTES:**

- A GROOVE JOINT 1" DEEP WITH 1/8" RADI SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 45' INTERVALS NOT TO EXCEED 50' AND MATCHING EXPANSION CONSTRUCTION JOINT IN ADJACENT CURB. A SEALED 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.
- SIDEWALK AT DRIVEWAY ENTRANCES TO BE 6" THICK.
- WIDTH OF SIDEWALK ON THOROUGHFARE STREETS SHALL BE A MINIMUM OF 5'. WIDTH OF SIDEWALKS IN THE CENTRAL BUSINESS DISTRICT WILL BE DETERMINED BY THE TOWN ENGINEER.
- WIDTH OF SIDEWALKS ON NON-THOROUGHFARE STREETS SHALL BE A MINIMUM OF 5' UNLESS OTHERWISE SPECIFIED BY THE TOWN'S UNIFIED DEVELOPMENT ORDINANCE.
- SIDEWALK TO BE POURED TO END OF RADIUS AT INTERSECTING STREETS.
- CONCRETE COMPRESSIVE STRENGTH SHALL BE 3600 PSI IN 28 DAYS.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS      CONCRETE SIDEWALKS      2 of 2 STD. NO. 4.04

**TYPICAL FIRE LANE PAVEMENT MARKING DETAIL**

CURB & GUTTER

NO PARKING FIRE LANE

MINIMUM 8" HIGH YELLOW LETTERS (THERMOPLASTIC)

4" SOLID YELLOW LINE (THERMOPLASTIC)

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS      FIRE LANE PAVEMENT MARKING      1 of 1 STD. NO. 3.31

**WHEELCHAIR (H/C) RAMP ALTERNATE 1**  
NOT TO SCALE

**WHEELCHAIR (H/C) RAMP ALTERNATE 2**  
NOT TO SCALE

LANDSCAPE AREA

CONCRETE SIDEWALK

CURB AND GUTTER

DOMES

VEHICULAR PAVEMENT

FLUSH WITH VEHICULAR PAVEMENT

DASHED LINE TO INDICATE SLOPE AREA NOT SCORE JOINT

ROUGH SCORED BROOM FINISH SECTION, DIRECTION OPPOSITE TO RAMP SLOPE

**WHEELCHAIR RAMP CURB CUT**

**SECTIONAL VIEW**

**PLAN VIEW**

**ISOMETRIC VIEW**

**NOTES:**

- DETECTABLE WARNING DOMES SHALL COVER 2 FEET IN LENGTH & FULL WIDTH OF THE RAMP FLOOR AS SHOWN. THE WALKING SURFACE SHALL BE DARK GRAY (70% CONTRAST RATIO) IN COLOR.
- CROSSWALK WIDTHS AND CONFIGURATIONS VARY, ALL MUST CONFORM TO TRAFFIC DESIGN STANDARDS.

**NOTE:**  
A PORTION OF ONE OR BOTH RAMPS MAY EXTEND OUTSIDE THE CURVE RADIUS.

W	A	W+A+9"	X	B
5'	0.0'	5.8'	5.8'	5.0'
6'	0.0'	6.8'	6.8'	5.0'
7'	0.0'	7.8'	7.3'	6.5'
8'	0.0'	8.8'	7.3'	6.5'
9'	2.0'	7.8'	7.8'	5.0'
9'	2.5'	8.3'	8.1'	4.5'
9'	3.0'	8.8'	8.3'	4.4'
9'	3.5'	9.3'	8.4'	4.1'
9'	4.0'	9.8'	8.6'	3.8'
9'	4.5'	10.3'	8.7'	3.4'
9'	5.0'	10.8'	8.9'	3.1'

**REVISIONS**

DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS      WHEELCHAIR RAMP CURB CUT      1 of 2 STD. NO. 4.06

**Typical Reinforced Wall Section - Preliminary**  
Standard Unit - 1' Setback

**NOTES:**

- WALL DESIGN TO BE PROVIDED BY GEOTECHNICAL AND STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION
- WALLS OVER 30" IN HEIGHT AND WITHIN 5' OF A PEDESTRIAN OR VEHICULAR USE AREA REQUIRE A SAFETY FENCE TO BE INSTALLED (FENCE SHALL NOT BE REQUIRED WHEN GUARDRAIL IS PROVIDED)
- THIS DETAIL IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY
- ANY REFERENCE TO A RETAINING WALL WITHIN THE PLAN SET IS FOR APPROVAL PERTAINING TO LOCATION, APPEARANCE, AND SIZE ONLY. ALL RETAINING WALLS MUST BE DESIGNED IN ACCORDANCE WITH SECTION 4.10 OF THE DESIGN AND CONSTRUCTION ORDINANCE.

**TOWN CERTIFICATION:** THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

TOWN ENGINEER: *[Signature]* DATE: 2/19/2015

ADMINISTRATOR: *[Signature]* DATE: 3/11/15

Professional Engineer Seal: 28948, Daniel Miller, State of North Carolina, License No. 21115

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No.	Revision	Date	By
1	1st CD Review Comments	12/23/14	KAP
2	Final Plans for Signature	02/11/15	KAP

Designer	W&R	Scale	AS NOTED
Drawn By	Date	09/15/14	
Checked By	Job No.	02140162	

**THALES ACADEMY**  
Wake County North Carolina

**SITE DETAILS**

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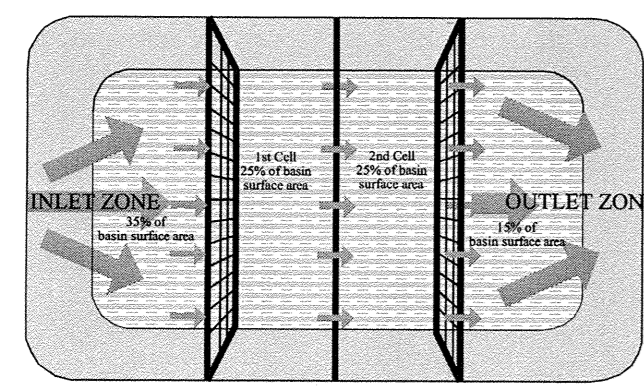




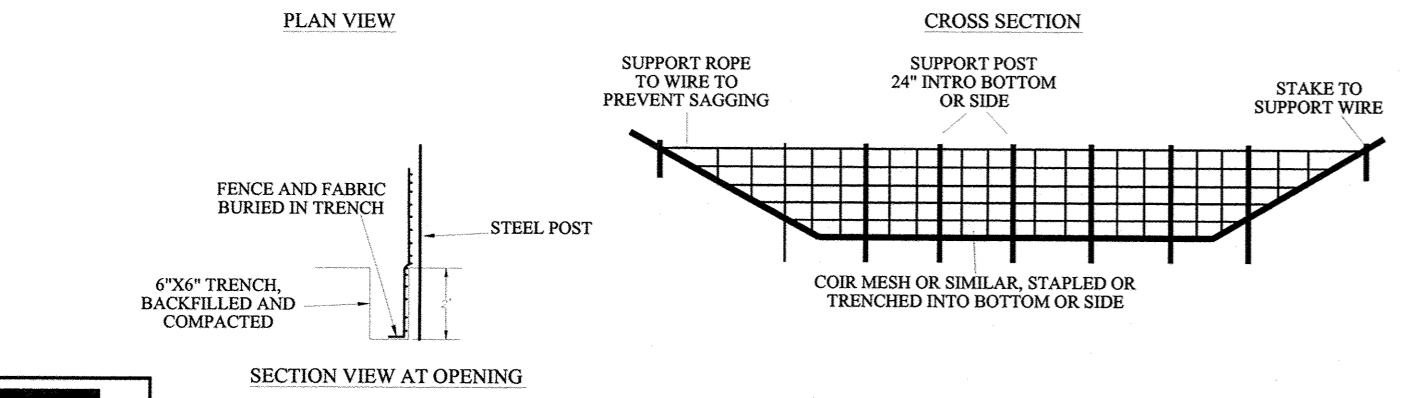




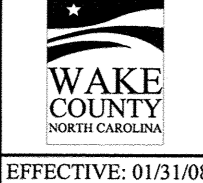




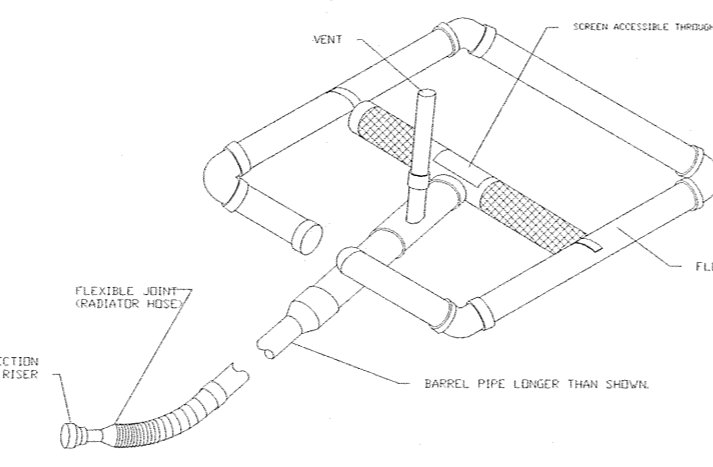
- NOTES:
1. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
  2. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
  3. PROVIDE 3 BAFFLES FOR TWO FEET LESS THAN 20 FEET IN LENGTH, PROVIDE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



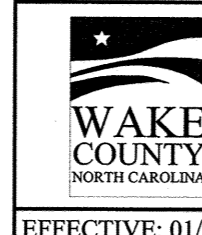
STANDARD BAFFLES DETAIL



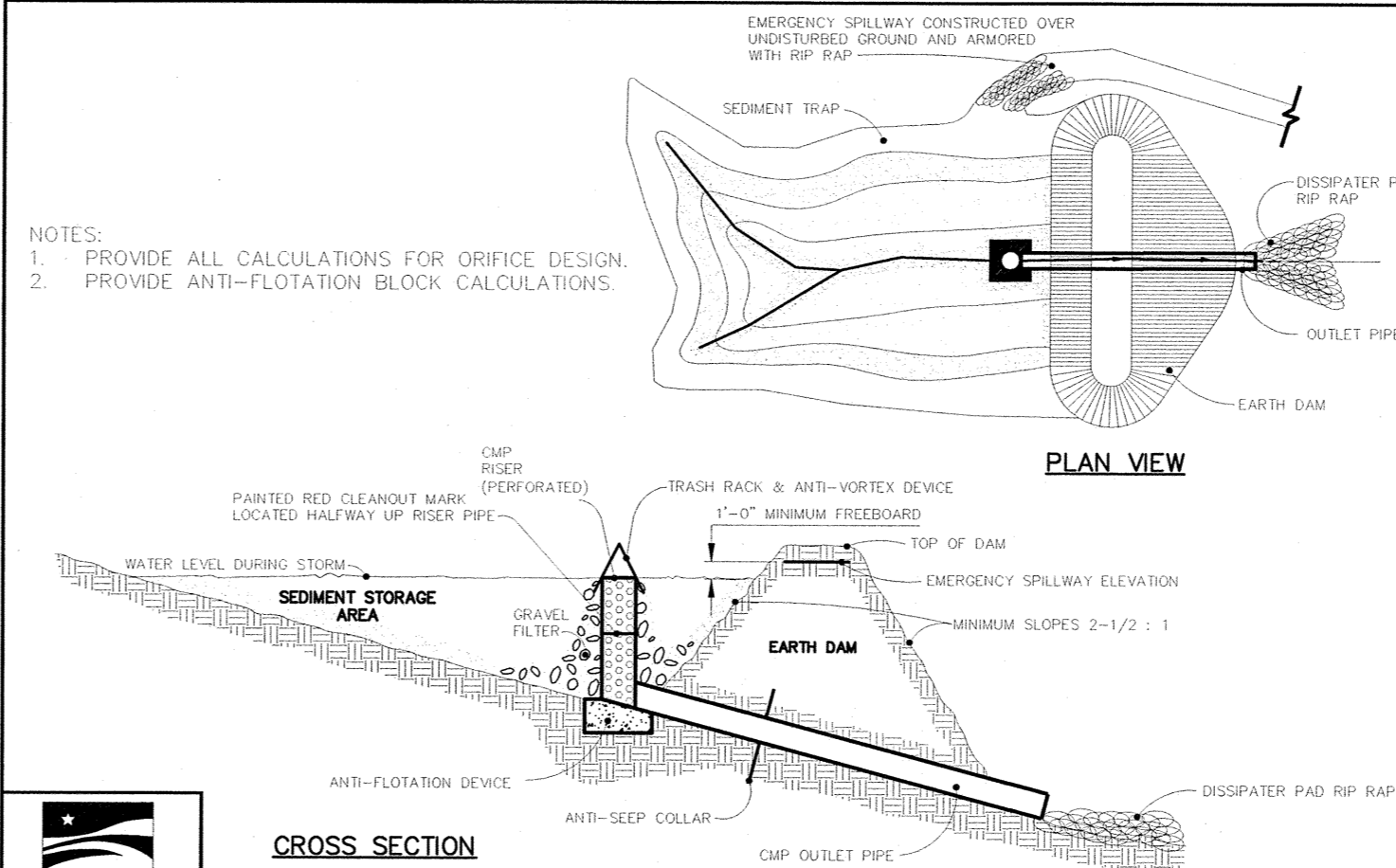
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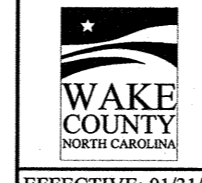
STANDARD SKIMMER DETAIL



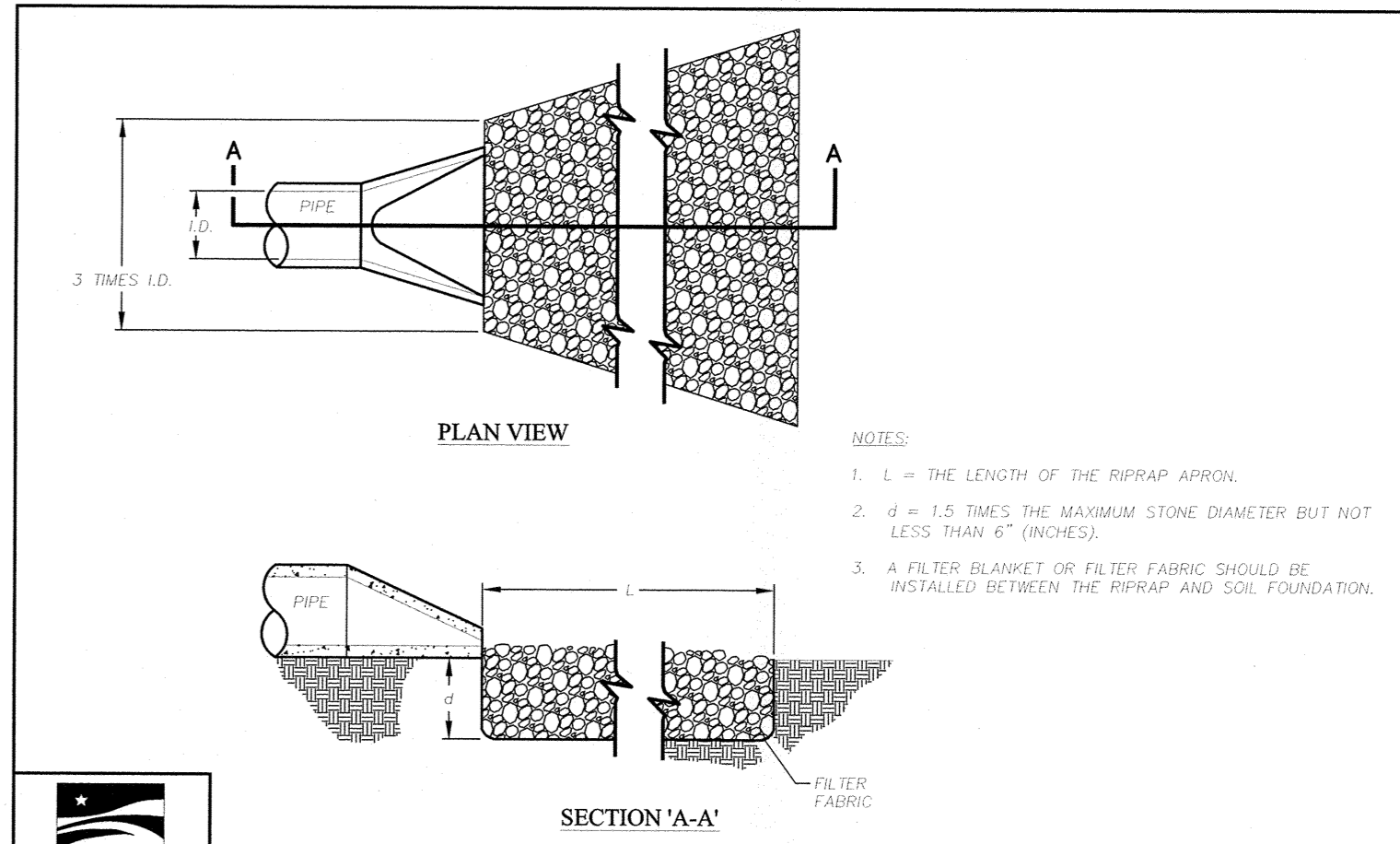
EFFECTIVE: 01/31/08



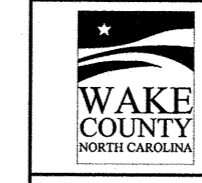
STANDARD RISER-BARREL SEDIMENT BASIN



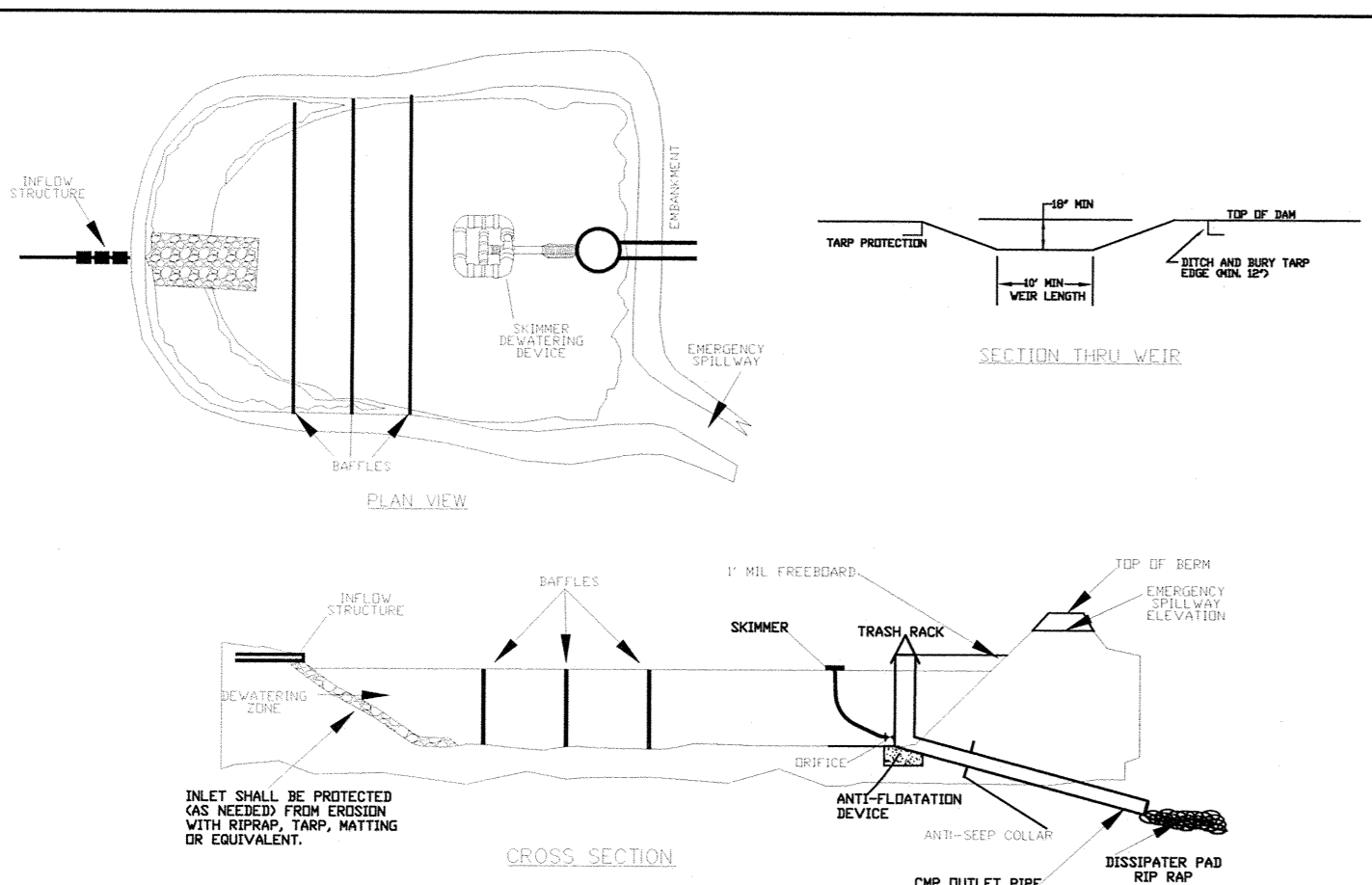
EFFECTIVE: 01/31/08



STANDARD PIPE OUTLET TO FLAT AREA NO WELL-DEFINED CHANNEL



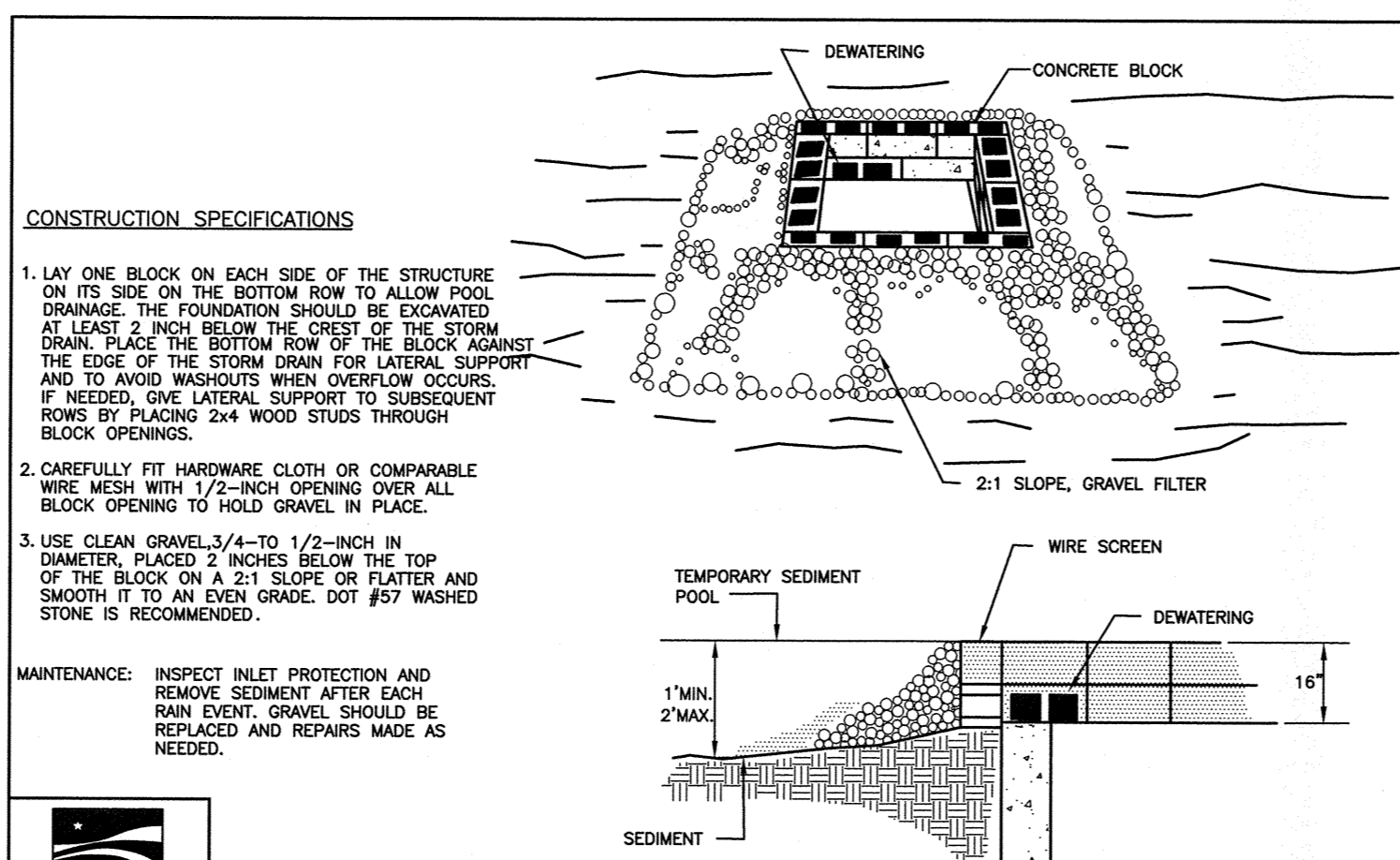
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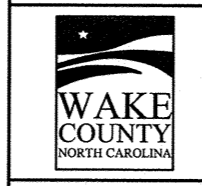
STANDARD SKIMMER ATTACHED TO PERMANENT RISER



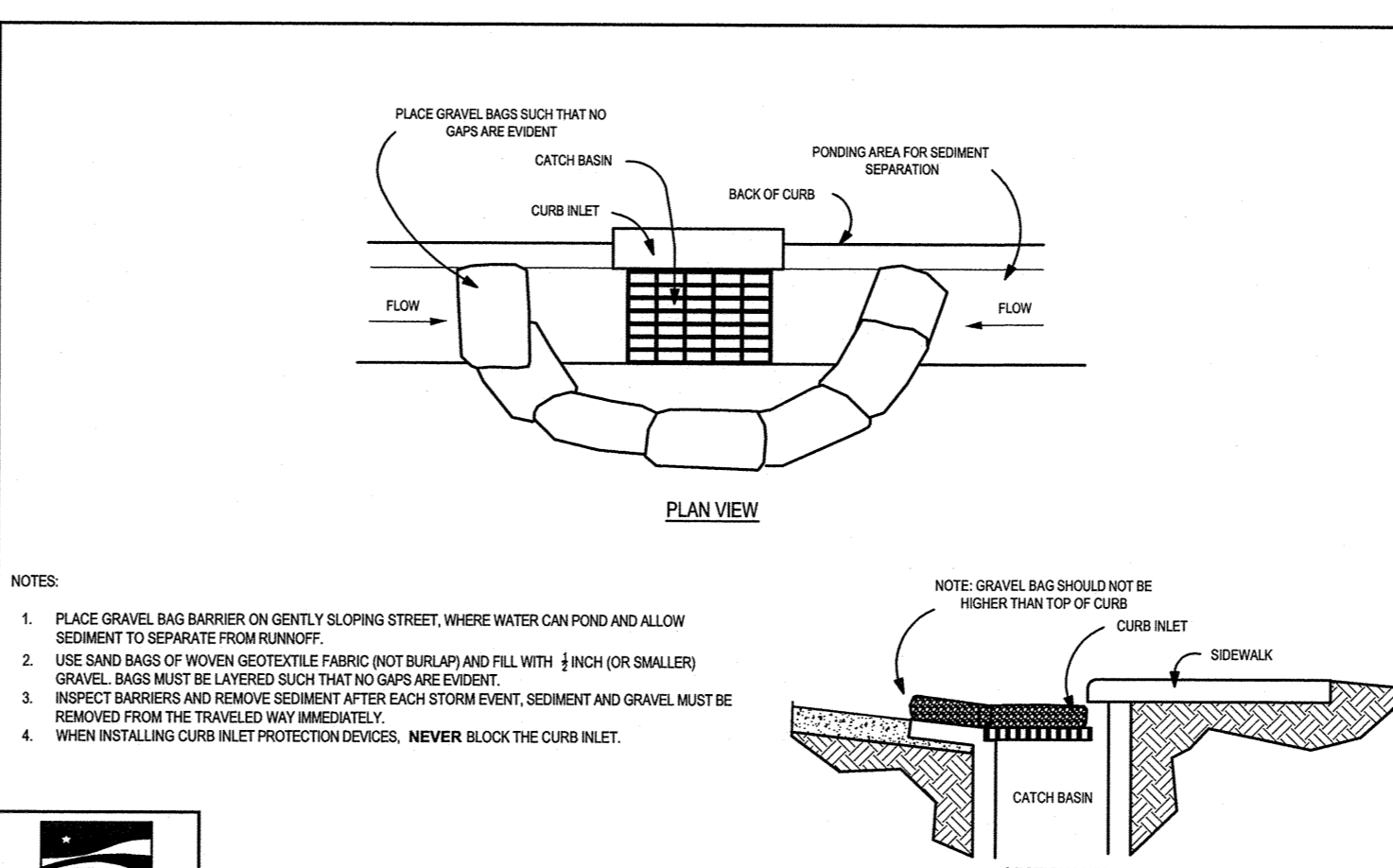
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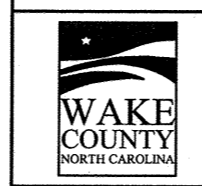
STANDARD BLOCK & GRAVEL DROP INLET PROTECTION



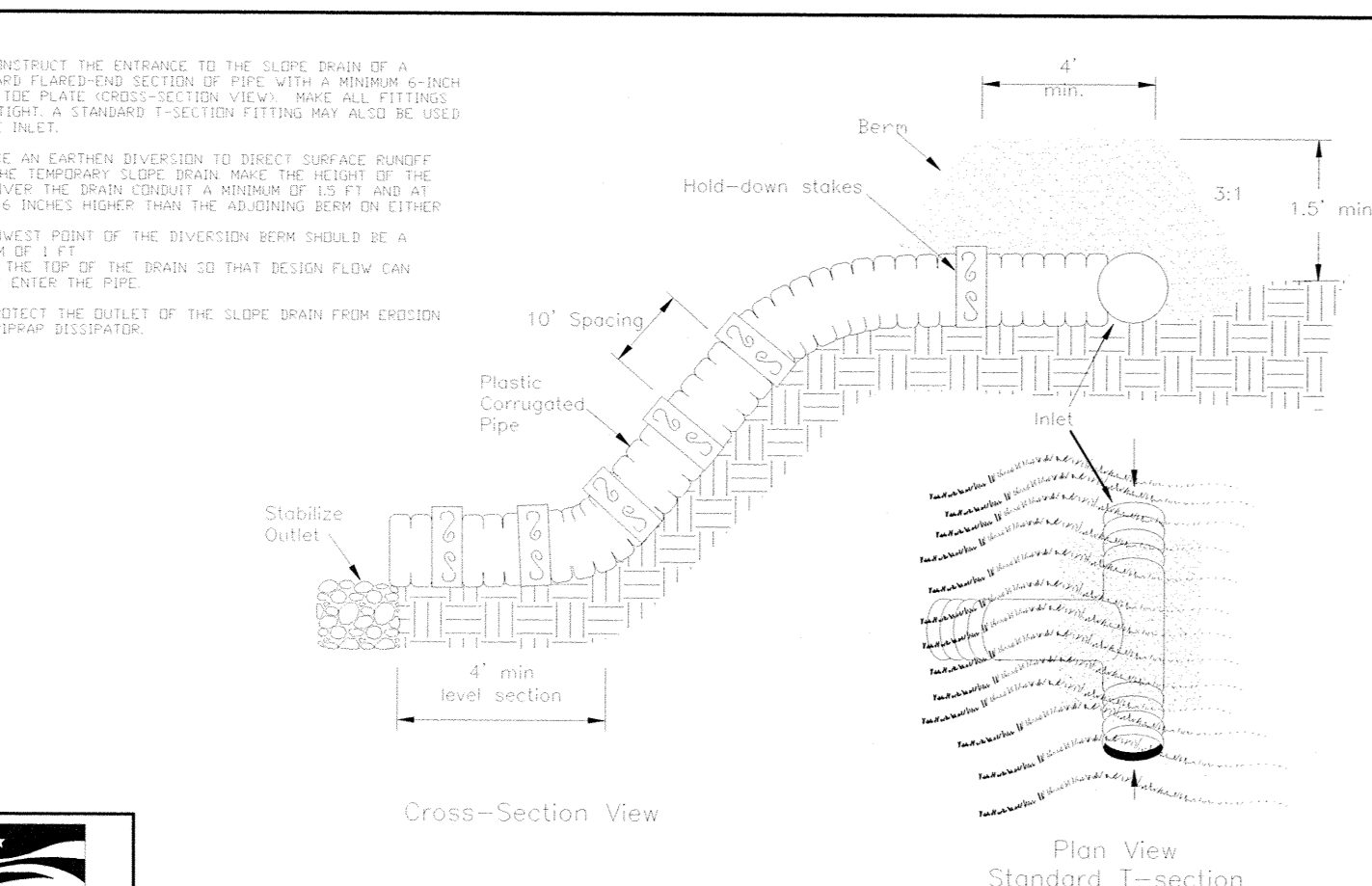
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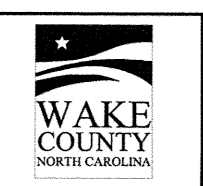
STANDARD GRAVEL BAG CURB INLET PROTECTION



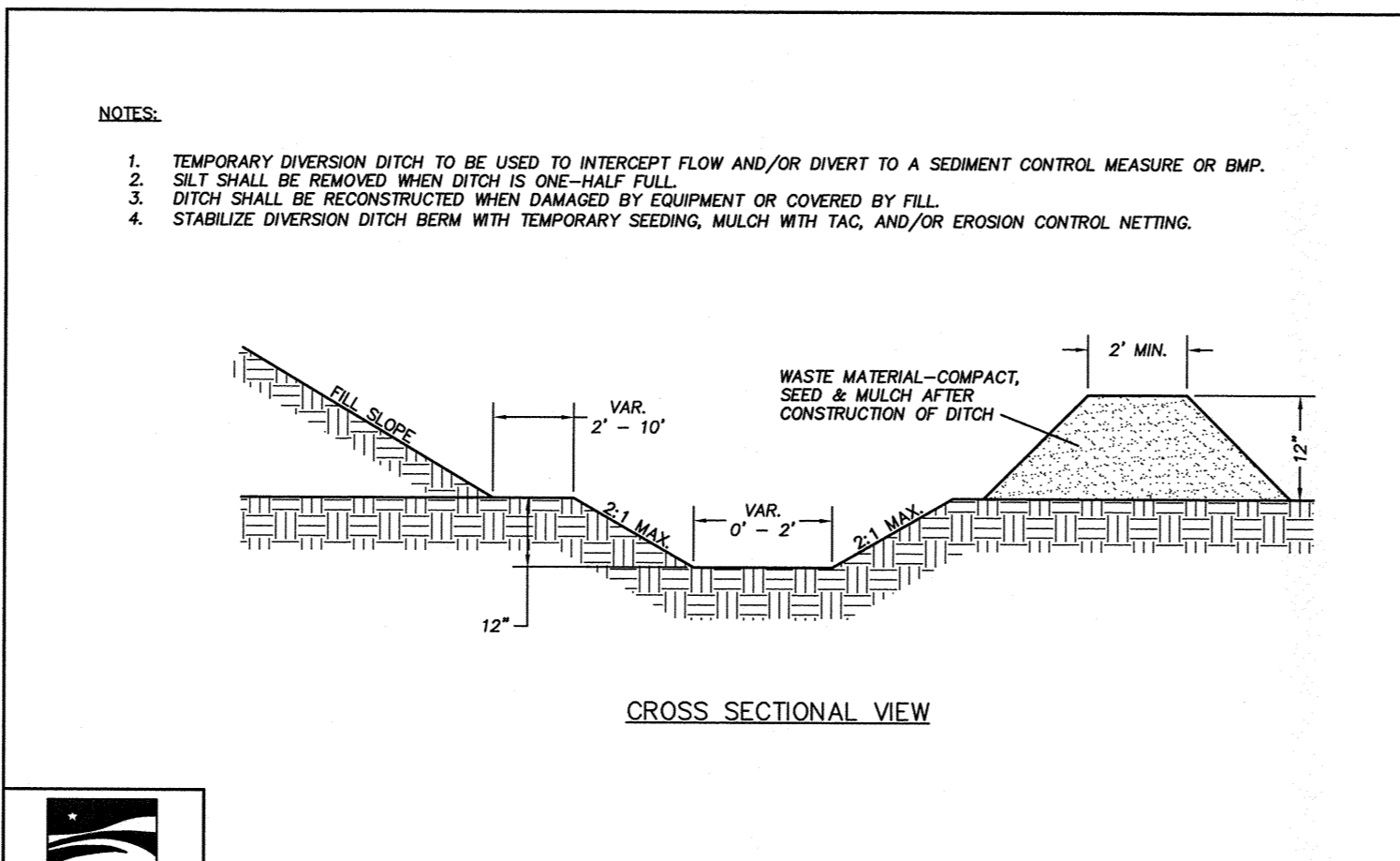
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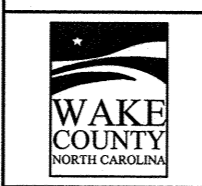
STANDARD TEMPORARY SLOPE DRAIN



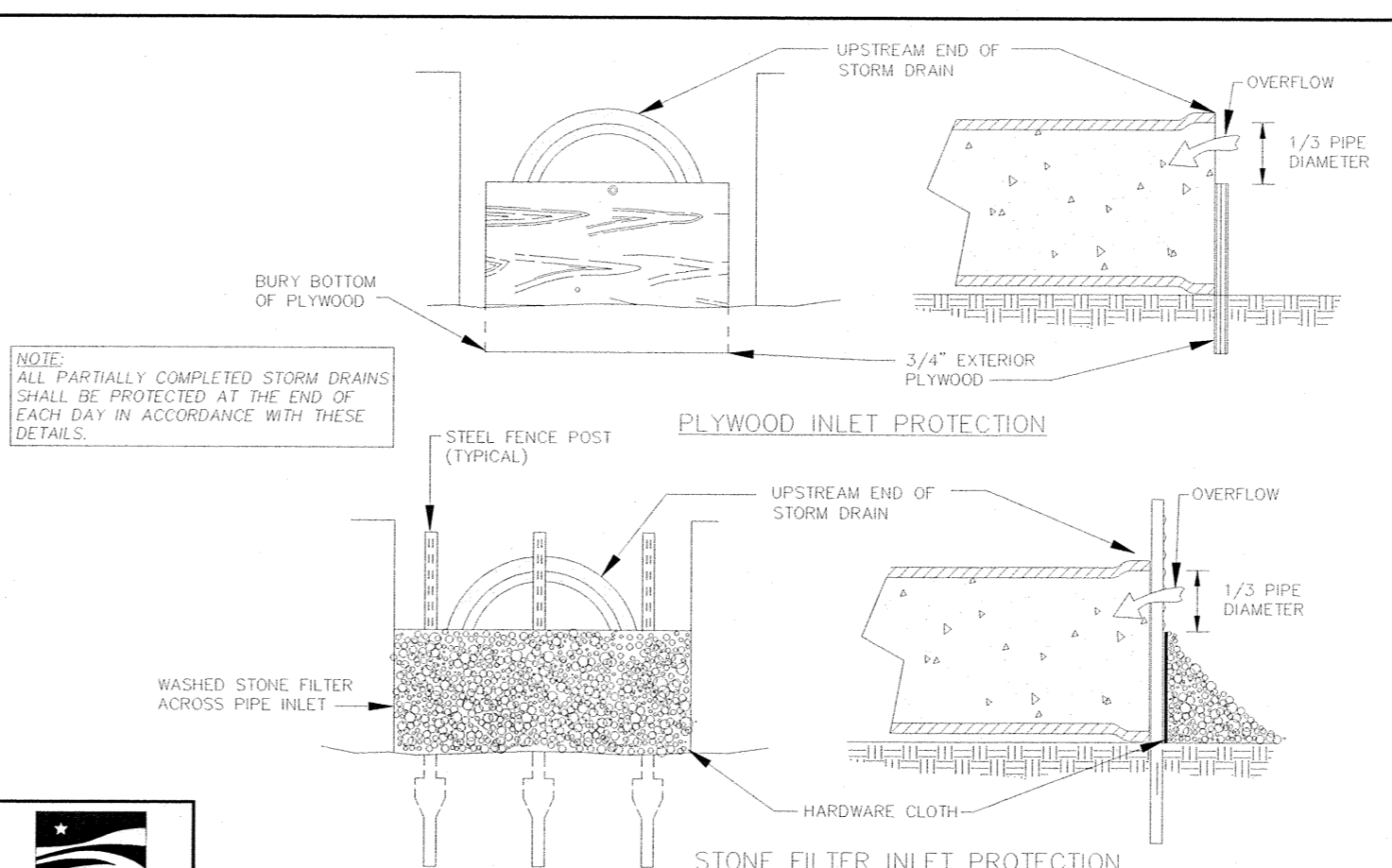
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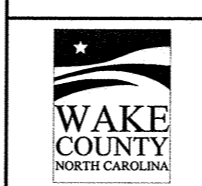
STANDARD TEMPORARY DIVERSION DITCH



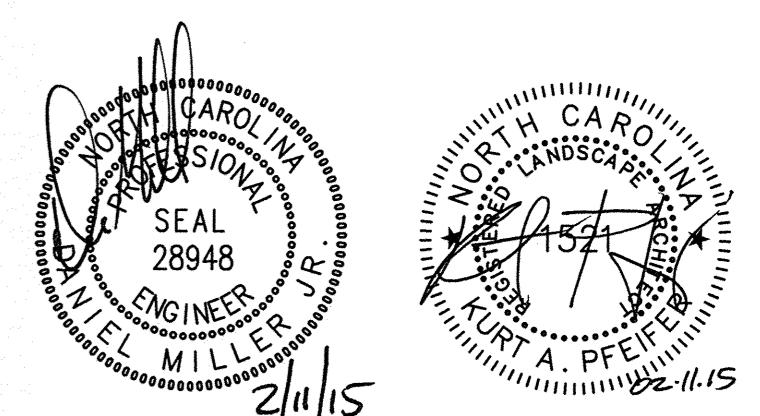
EFFECTIVE: 01/31/08



STANDARD PIPE INLET PROTECTION (PLYWOOD & STONE)



EFFECTIVE: 01/31/08



TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: *[Signature]* DATE: 2/19/2015  
 TOWN ENGINEER  
 THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.  
 BY: *[Signature]* DATE: 3.11.15  
 ADMINISTRATOR

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Designer	Scale
W&R	AS NOTED
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TFW	09/15/14
Checked By	Job No.
W&R	02140162

THALES ACADEMY

Wake County

North Carolina

DRAINAGE & EROSION CONTROL DETAILS

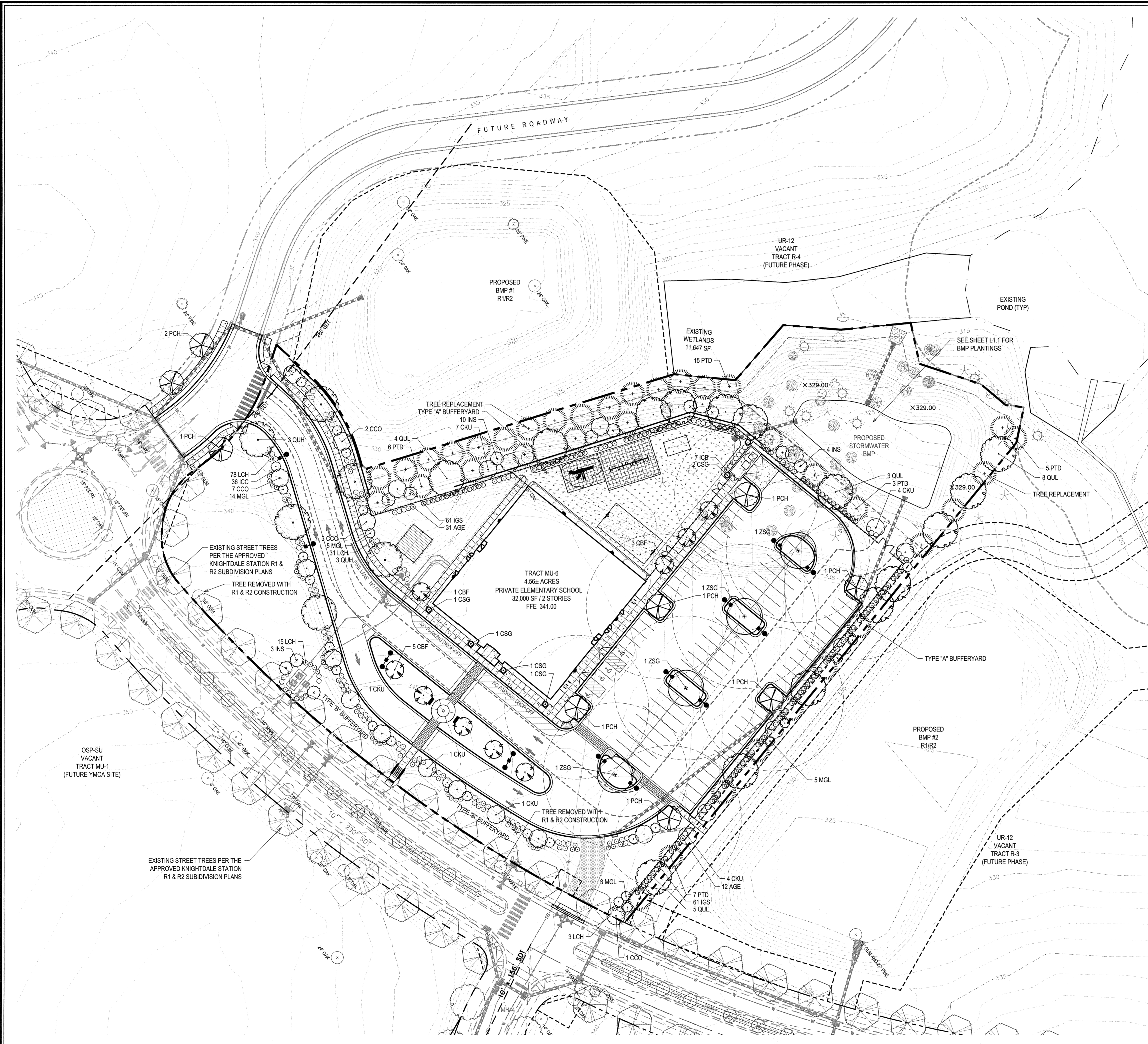
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Sheet No.  
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THALES ACADEMY MASTER PLANT SCHEDULE											02.11.15
PLANT TYPE	QTY	KEY	BOTANICAL NAME	COMMON NAME	ROOT	CALIPER	HEIGHT	NOTES			
TREES	9	CBF	Carpinus betulus 'Fastigiata'	European Hornbeam	B&B	3"	12'-14'	MATCHED			
	11	CCO	Cercis canadensis ssp. texensis 'Oklahoma'	Oklahoma Redbud	B&B	2"	8'-10'	MATCHED			
	15	CKU	Cornus kousa 'Milky Way'	Chinese Dogwood	B&B	2"	8'-10'	MATCHED			
	6	CSG	Cupressus sempervirens 'Glaucia'	Italian Cypress	B&B	2"	8'-10'	MATCHED			
	12	INS	Ilex x 'Nellie R. Stevens'	Nellie Stevens Holly	B&B	2"	8'-10'	MATCHED			
	27	MGL	Magnolia grandiflora 'Little Gem'	Little Gem Southern Magnolia	B&B	2"	8'-10'	MATCHED			
	36	PTD	Pinus taeda	Loblolly Pine	B&B	2"	8'-10'	MATCHED			
	9	PCH	Pistacia chinensis	Chinese Pistache	B&B	3"	12'-14'	MATCHED			
	6	QUH	Quercus hemisphaerica	Laurel Oak	B&B	3"	12'-14'	MATCHED			
	15	QUL	Quercus lyrata	Overcup Oak	B&B	3"	12'-14'	MATCHED			
	4	ZSG	Zelkova serrata 'Green Vase'	Green Vase Zelkova	B&B	3"	12'-14'	MATCHED			
	SHRUBS	43	AGE	Abelia x grandiflora 'Edward Goucher'	Edward Goucher Abelia	CONT.	3 Gal.	18"-24"	MATCHED; 4" O.C.		
7		ICB	Ilex cornuta 'Burfordi Nana'	Dwarf Burford Holly	CONT.	5 Gal.	24"-36"	MATCHED; 5" O.C.			
36		ICC	Ilex cornuta 'Carissa'	Carissa Holly	CONT.	3 Gal.	18"-24"	MATCHED; 3" O.C.			
122		IGS	Ilex glabra 'Shamrock'	Compact Inkberry	CONT.	3 Gal.	18"-24"	MATCHED; 5" O.C.			
129		LCH	Loropetalum chinense 'Blush'	Blush Chinese Witchhazel	CONT.	5 Gal.	24"-36"	MATCHED; 5" O.C.			

- GENERAL LANDSCAPE NOTES**
- TREE PROTECTION FENCE SHALL SURROUND ALL EXISTING PLANTINGS AND EXISTING BUFFER AREAS WHERE APPLICABLE AND SHALL BE MAINTAINED UNTIL ALL SITE WORK IS COMPLETE. THE FENCE SHALL BE REMOVED PRIOR TO THE FINAL SITE INSPECTION FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
  - NO CHANGES TO ANY ASPECT OF THIS SITE PLAN, INCLUDING BUT NOT LIMITED TO LANDSCAPING, GRADING, BUILDING ELEVATIONS (ESPECIALLY COLOR), LIGHTING, OR UTILITIES WILL BE MADE WITHOUT THE APPROVAL OF THE DEVELOPMENT REVIEW COMMITTEE OF THE TOWN OF KNIGHTDALE.
  - ALL EXTERIOR SITE LIGHTING WILL BE DESIGNED TO PREVENT OFF-SITE GLARE.
  - THE SITE SHALL BE STABILIZED AND SEEDING PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY (CO).
  - ALL ABOVE GROUND UTILITY EQUIPMENT (AND FACILITIES ASSOCIATED WITH ON SITE ELECTRIC, TELEPHONE, GAS, CABLE, OR OTHER SIMILAR UTILITY) AND ENCLOSED TRASH CONTAINMENT SHALL BE SCREENED BY THE ELEMENTS OF A TYPE B (SEMI-OPAQUE) BUFFER YARD TO A SIX (6) FEET IN HEIGHT OR THE HEIGHT OF THE UTILITY OR ENCLOSURE, WHICHEVER IS LESS.
  - NO TREE SHALL BE LOCATED WITHIN 10 FEET OF A LIGHT POLE OR 12 FEET FROM ELECTRICAL TRANSFORMERS.
  - THIS PLAN IS FOR PLANTING PURPOSES ONLY. FOR INFORMATION REGARDING GRADING, WALLS, ETC., REFER TO THE SITE AND GRADING PLANS.
  - ALL PLANTS AND PLANTING PROCEDURES SHALL MEET OR EXCEED A.N.L.A. STANDARDS AS SET FORTH IN 'AMERICAN STANDARD FOR NURSERY STOCK', 2004 OR LATER EDITION.
  - ALL TREES AND SHRUBS SHALL BE FULL, WELL-BRANCHED PLANTS WHICH ARE CHARACTERISTIC TO THE SPECIES.
  - ALL CANOPY TREES TO BE A MINIMUM OF 2" CALIPER AND 8' HEIGHT, ALL UNDERSTORY TREES 1 1/2" CALIPER, 6' HEIGHT AND SHRUBS 18", 3 GAL. CONTAINER AT TIME OF INSTALLATION.
  - PLANT MATERIAL LOCATED WITHIN A REQUIRED SIGHT DISTANCE MAINTENANCE EASEMENT SHALL BE MAINTAINED AT A HEIGHT LESS THAN 24 INCHES OR LIMBED UP TO A MINIMUM HEIGHT OF SIX FEET.
  - ALL PLANT BEDS TO BE MULCHED WITH A MINIMUM OF 3" OF CLEAN PINE STRAW OR SHREDDED HARDWOOD BARK AT THE DISCRETION OF THE DEVELOPER. ALL PLANT GROUPINGS SHALL BE MULCHED AS ONE BED.

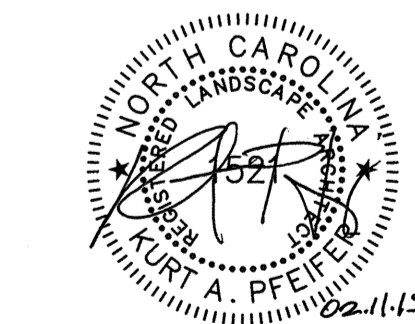
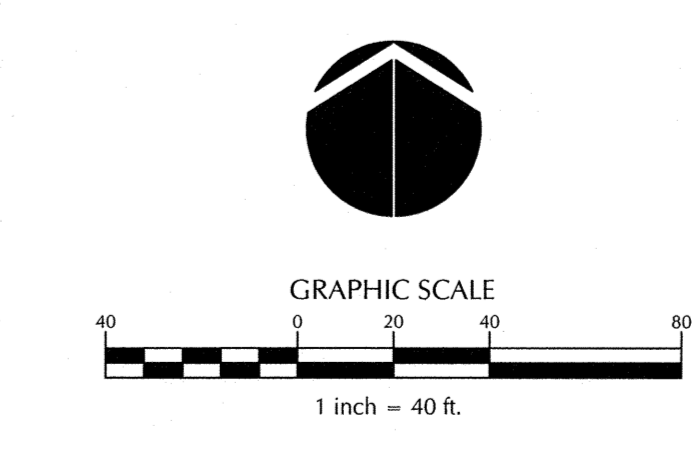
- U.D.O. LANDSCAPE REQUIREMENTS**
- PARKING LOT SCREENING: TYPE A BUFFER:**  
 FOR EVERY 100 LINEAR FEET, THERE SHALL BE AT LEAST THREE (3) CANOPY TREES, TWO (2) UNDERSTORY TREES AND 20 SHRUBS.  
 765 LF = 23 CANOPY TREES, 16 UNDERSTORY TREES, AND 153 SHRUBS REQUIRED  
 27 CANOPY TREES, 22 UNDERSTORY TREES, AND 165 SHRUBS PROVIDED  
 (NOTE: 4 EXTRA TREES TO BE CREDITED TO REPLACEMENT QUANTITIES)
- PARKING LOT SCREENING: TYPE B BUFFER:**  
 FOR EVERY 100 LINEAR FEET, THERE SHALL BE AT LEAST THREE (3) CANOPY TREES, FIVE (5) UNDERSTORY TREES AND 20 SHRUBS.  
 525 LF = 16 CANOPY TREES, 27 UNDERSTORY TREES, AND 105 SHRUBS REQUIRED  
 17 CANOPY TREES (INCLUDES 14 STREET TREES PER R1 & R2), 28 UNDERSTORY TREES, AND 113 SHRUBS PROVIDED
- PARKING LOT LANDSCAPING:**  
 NO PARKING SPACE SHALL BE MORE THAN 60 FT FROM THE BASE OF A DECIDUOUS CANOPY TREE. IN ADDITION, LANDSCAPE AREAS SHALL BE PROVIDED AT THE END OF EACH PARKING ROW AND SHALL CONTAIN A DECIDUOUS CANOPY TREE.
- TIER 2 TREE PROTECTION FROM SITE PLAN:**  
 (17) 12"-24" DBH TREES ON 15% - 25% SLOPES TO BE REMOVED (271 TOTAL CALIPER INCHES)  
 271" / 12" = (23) 2" MIN. CALIPER REPLACEMENT TREES REQUIRED, 23 TREES PROVIDED (INCLUDES 4 EXTRA TREES IN TYPE A BUFFER LISTED ABOVE)
- TIER 3 TREE PROTECTION FROM SITE PLAN:**  
 (6) TREES > 24" DBH TO BE REMOVED (161 TOTAL CALIPER INCHES)  
 161" / 12" = (14) 2" MIN. CALIPER REPLACEMENT TREES REQUIRED, 14 TREES PROVIDED

**TOWN CERTIFICATION.** THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED BY THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: *[Signature]* DATE: 2/11/2015  
 TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: *[Signature]* DATE: 3.11.15  
 ADMINISTRATOR



No.	Revision	Date	By	Designer	W&R	Scale
1	1st CD Review Comments	12/23/14	KAP			AS NOTED
2	Final Plans for Signature	02/11/15	KAP			

**THALES ACADEMY**  
 Knightdale Wake County North Carolina

**LANDSCAPE PLAN**

**WITHERS & RAVENEL**  
 ENGINEERS | PLANNERS | SURVEYORS  
 111 MacKenan Drive Cary, North Carolina 27511 tel: 919-469-3340 www.withersravenel.com License No. C-0832

Sheet No. **L1.0**

K:\14-0100\140102-thales academy - highlands\CD\construction drawings\1.0 LANDSCAPE PLAN.dwg - Wednesday, February 11, 2015 3:42:17 PM - PFEIFFER, KURT

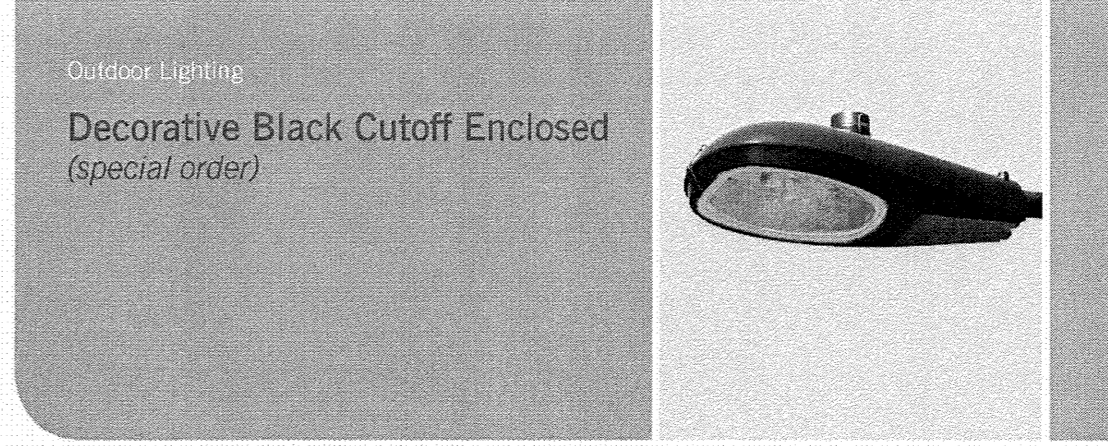






THALES ACADEMY CALCULATION SUMMARY	02.10.15									
AREA NAME	DIMENSIONS	GRID / TYPE	# PTS	PAC	GROUP	AVE	MAX	MIN	MAXMIN	AVEMIN
BOUNDARY	725.25 X 901.69 FT	PARKING / H/H	2607	10.00	<<>	1.75	5.46	.60	9.05	2.90
*AVEMAXMIN AND MAXMIN AND AVEMIN REPRESENT LIGHT LEVELS WITHIN PARKING LOT.										

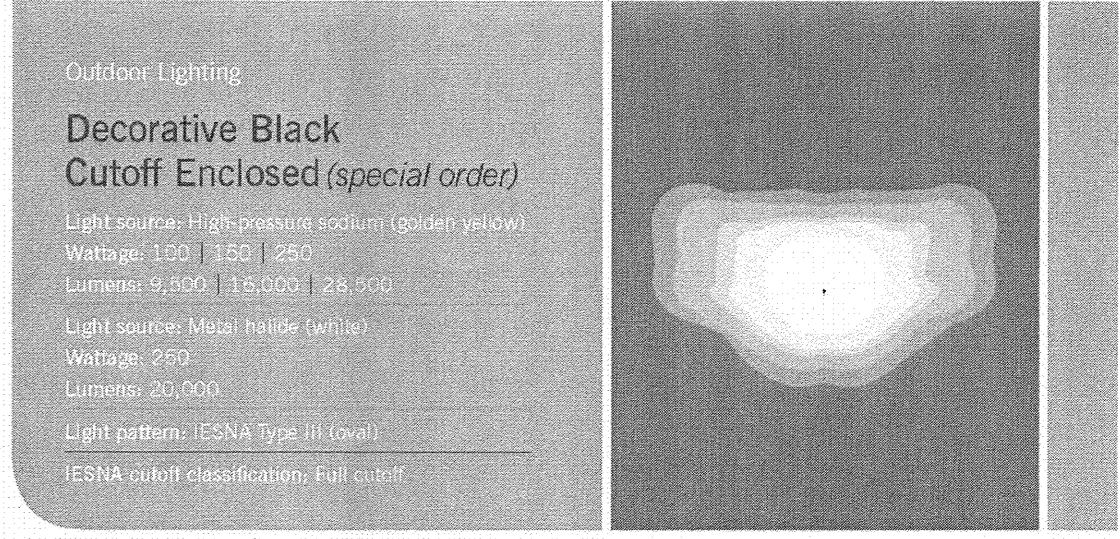
PROPOSED LIGHT FIXTURE										
TYP	SYMBOL	DESCRIPTION	LAMP	LUMENS	MOUNTING/BALLAST	LLF	QTY	CUTOFF TYPE / OPTION	PROVIDED BY	
DES		AMERICAN ELECTRIC 250 WATT METAL HALIDE - DECORATIVE BLACK CUTOFF ENCLOSED TYPE III	(1) MS250WH75PSIED28	20,000	30" Black Fiberglass	0.85	8	FULL CUTOFF	DUKE ENERGY PROGRESS	
DESS		AMERICAN ELECTRIC 250 WATT METAL HALIDE - DECORATIVE BLACK CUTOFF ENCLOSED TYPE III W/ SHIELD	(1) MS250WH75PSIED28	20,000	30" Black Fiberglass	0.85	2	FULL CUTOFF	DUKE ENERGY PROGRESS	
DED		AMERICAN ELECTRIC 250 WATT METAL HALIDE - DECORATIVE BLACK CUTOFF ENCLOSED TYPE III	(1) MS250WH75PSIED28	20,000	30" Black Fiberglass	0.85	2	FULL CUTOFF	DUKE ENERGY PROGRESS	
WM		LITHONIA LIGHTING CSXW LED 300 700 40K 7M CONTOUR SERIES LED WALL MOUNT	(1) NICHIA 2198	12,000	WALL MOUNT, 12" A.F.F.	0.85	6	N/A	LITHONIA LIGHTING	



Well-suited for roadways, parking lots and other narrow, narrow settings, the Decorative Black Cutoff Enclosed provides reduced glare and spillage, along with a more controlled lighting pattern. Light is directed where you need it. Choose low or medium light output sizes on black fiberglass or black concrete poles. Available with one or two fixtures per pole.

High-pressure sodium	100   150   250 watts 9,500   16,000   28,500 lumens
Metal halide	250 watts 20,000 lumens
Mounting heights	25, 29, 30, 35'
Color	Black
Poles	Black fiberglass (additional cost) Black concrete (additional cost)

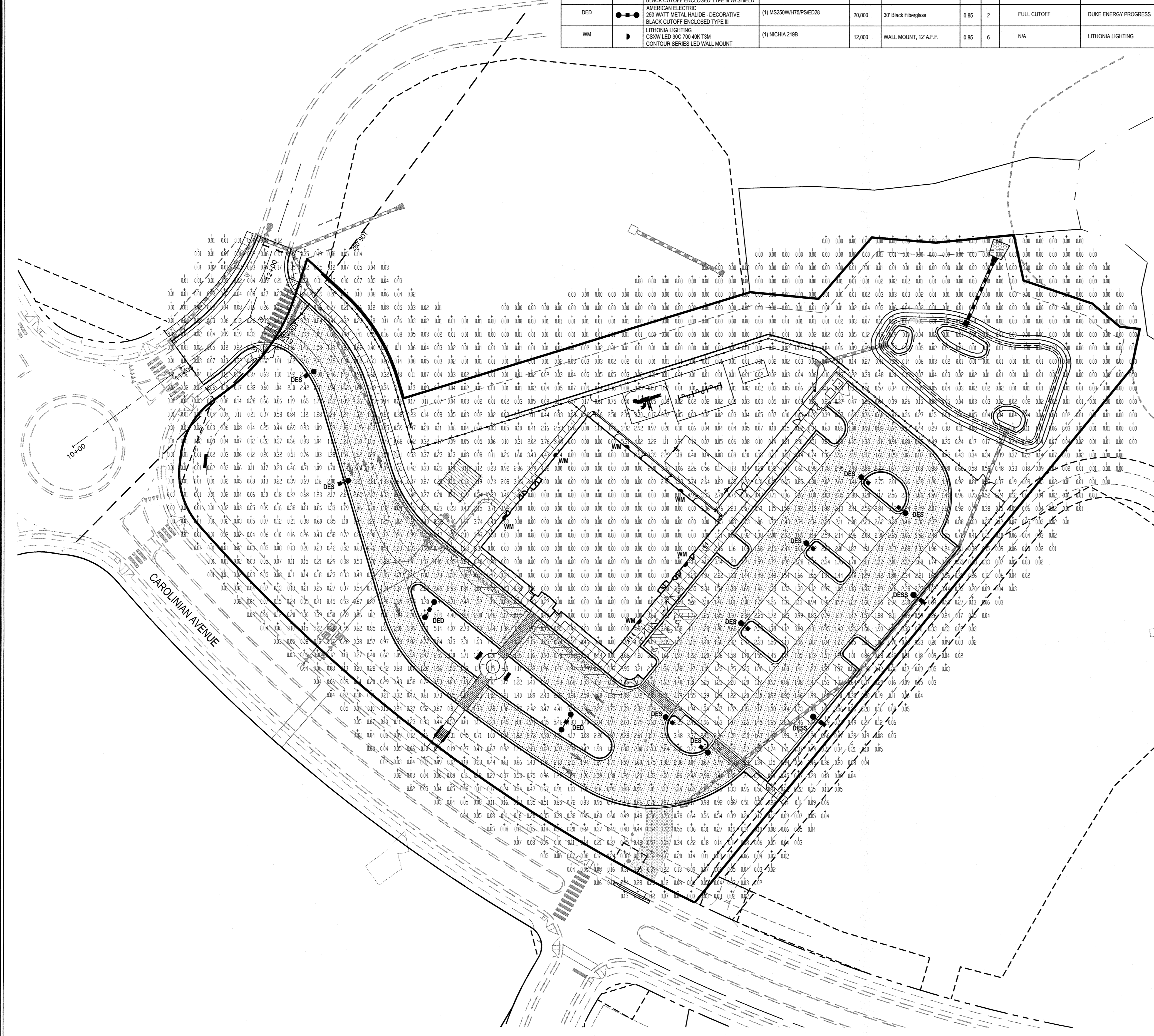
Note: These black fixtures and poles are not stocked by Duke Energy Progress. They must be special ordered and require up to eight weeks of lead time for arrival.



Poles available:	Mounting heights	Color
Fiberglass	25', 30', 35'	Black (additional cost)
Concrete	29'	Black (additional cost)

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

Note: These black fixtures and poles are not stocked by Duke Energy Progress. They must be special ordered and require up to eight weeks of lead time for arrival.



For additional information, visit us at [duke-energy.com/OutdoorLighting](http://duke-energy.com/OutdoorLighting) or call us toll free at 800.433.3777.

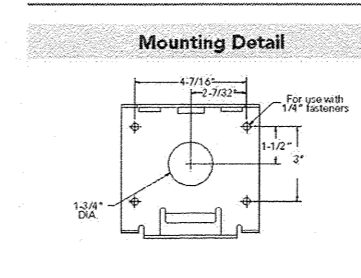


Series	LED	Output (lm)	Color Temp (K)	Beam Angle	Mounting	Dimensions (H x W x D)	Weight (lb)
CSXW1	300	3000	4000	120°	Surface mount	7.1" x 2.7" x 1.4"	0.33
CSXW2	700	7000	4000	120°	Surface mount	9.5" x 4.1" x 1.4"	0.33

**Introduction**  
The Contour® Series luminaires offer traditional square daylamps with softened edges for a versatile look that complements many applications. The CSXW LED combines the latest in LED technology with the familiar aesthetic of the Contour® Series for stylish, high-performance illumination that lasts. It is ideal for replacing 100-400W metal halide in wall-mounted applications with typical energy savings of 80% and expected service life of over 100,000 hours.

**Ordering Information** EXAMPLE: CSXW LED 300 700 40K 7M MVOLT DDDX

Series	LED	Output (lm)	Color Temp (K)	Beam Angle	Mounting	Dimensions (H x W x D)	Weight (lb)
CSXW1	300	3000	4000	120°	Surface mount	7.1" x 2.7" x 1.4"	0.33
CSXW2	700	7000	4000	120°	Surface mount	9.5" x 4.1" x 1.4"	0.33

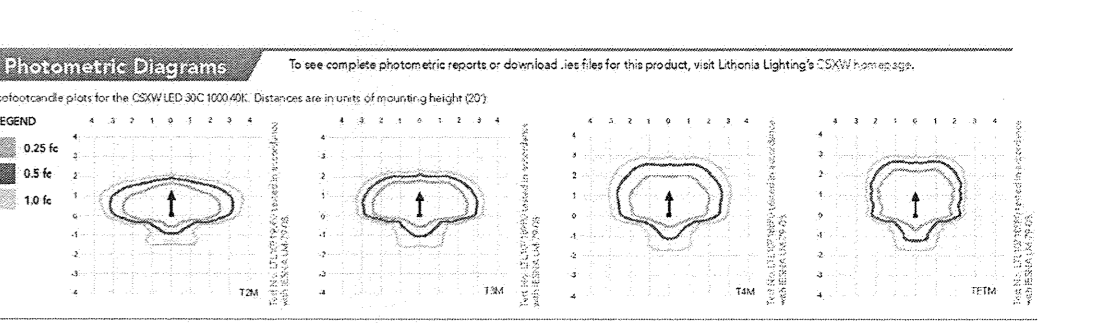


**Accessories**  
CSXW1: 300 LED luminaire  
CSXW2: 700 LED luminaire  
CSXW3: 1500 LED luminaire  
CSXW4: 3000 LED luminaire  
CSXW5: 7000 LED luminaire  
CSXW6: 15000 LED luminaire  
CSXW7: 30000 LED luminaire  
CSXW8: 70000 LED luminaire  
CSXW9: 150000 LED luminaire  
CSXW10: 300000 LED luminaire

Series	LED	Output (lm)	Color Temp (K)	Beam Angle	Mounting	Dimensions (H x W x D)	Weight (lb)
CSXW1	300	3000	4000	120°	Surface mount	7.1" x 2.7" x 1.4"	0.33
CSXW2	700	7000	4000	120°	Surface mount	9.5" x 4.1" x 1.4"	0.33

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Series	LED	Output (lm)	Color Temp (K)	Beam Angle	Mounting	Dimensions (H x W x D)	Weight (lb)
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CSXW2	700	7000	4000	120°	Surface mount	9.5" x 4.1" x 1.4"	0.33



**FEATURES & SPECIFICATIONS**  
**INTENDED USE:** The CSXW LED Wall Luminaire is designed for use in commercial buildings, parking lots, and other narrow, narrow settings.  
**CONSTRUCTION:** The luminaire is constructed from high-quality materials and is designed for long life and low maintenance.  
**INSTALLATION:** The luminaire is designed for easy installation and is compatible with a wide range of mounting options.  
**OPERATION:** The luminaire is designed for long life and low maintenance.  
**WARRANTY:** The luminaire is covered by a limited warranty.

No.	Revision	Date	By
1	1st CD Review Comments	12/23/14	KAP
2	Final Plans for Signature	02/11/15	KAP

Designer	W&R	Scale	AS NOTED
Drawn By	TFW	Date	09/15/14
Checked By	W&R	Job No.	02140162

**THALES ACADEMY**  
Wake County  
North Carolina

**LIGHTING PLAN**

**WITHERS & RAVENEL**  
ENGINEERS | PLANNERS | SURVEYORS  
111 MacKenzie Drive Cary, North Carolina 27511 | tel: 919-469-3340 | www.withersravenel.com | License No. C-0832

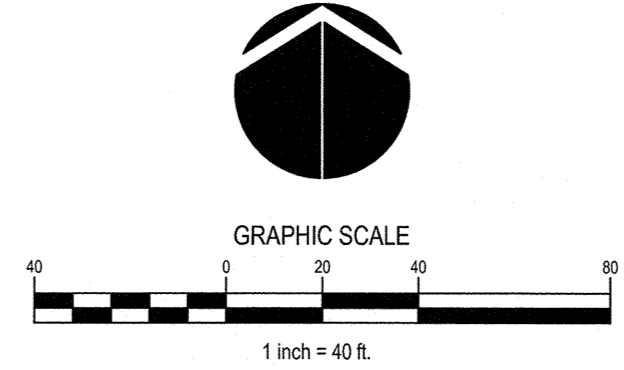
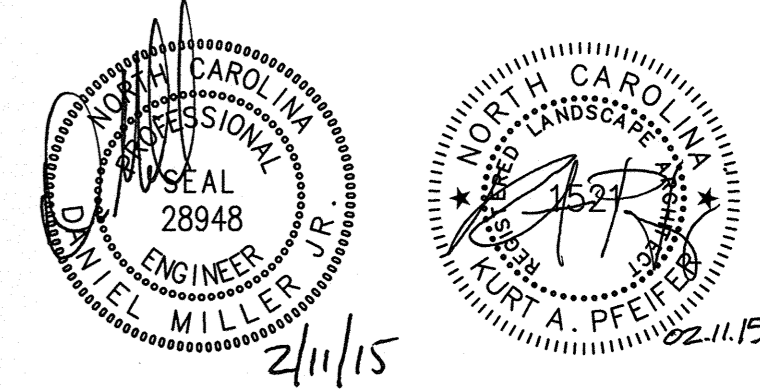
Sheet No. **L2.0**

**TOWN CERTIFICATION.** THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

TOWN ENGINEER: *[Signature]* DATE: 2/19/2015

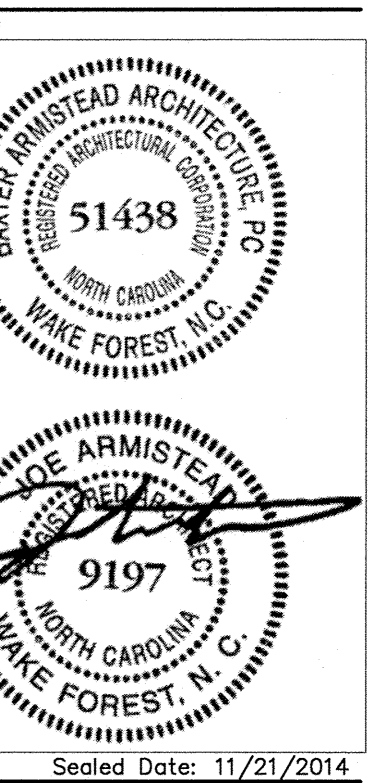
THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

ADMINISTRATOR: *[Signature]* DATE: 3/11/15



K:\14-0162\140162-thales academy - Knightdale\CD\Construction drawings\L2.0 LIGHTING\CD\Construction drawings\L2.0 LIGHTING PLAN.dwg - Wednesday, February 11, 2015 3:11:39 PM - PFEIFER, KURT





Sealed Date: 11/21/2014  
Consultants

TOWN CERTIFICATION: THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: *[Signature]* DATE: 11/17/2014  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: *[Signature]* DATE: 11/17/2014  
ADMINISTRATOR

No.	Revision	Date
1	Issued for Permitting/Construction	11/21/2014

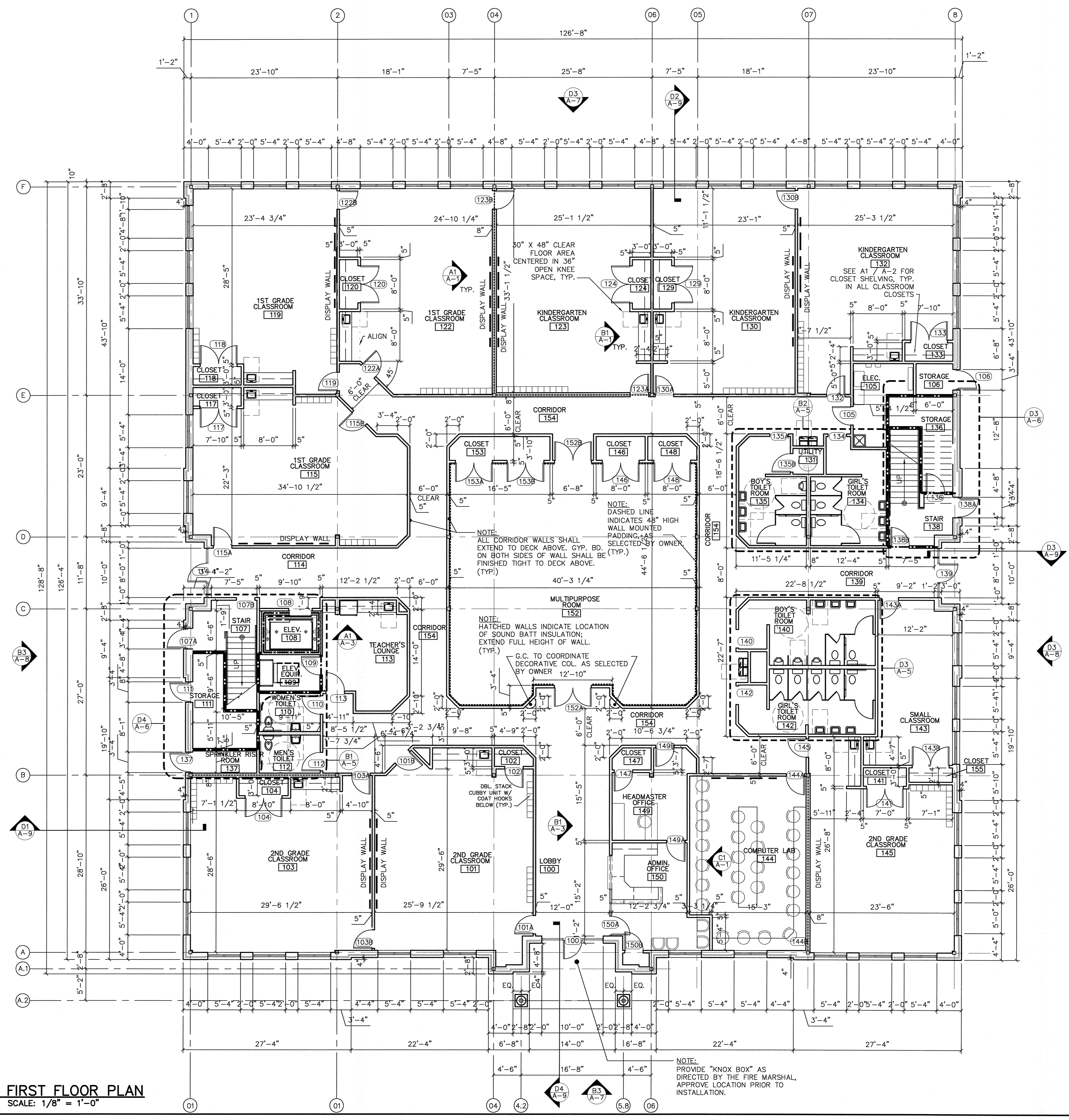
14010 A-1.dwg J.Armistead  
File Name: Drawn By

Client/ Project  
CADE, Inc./

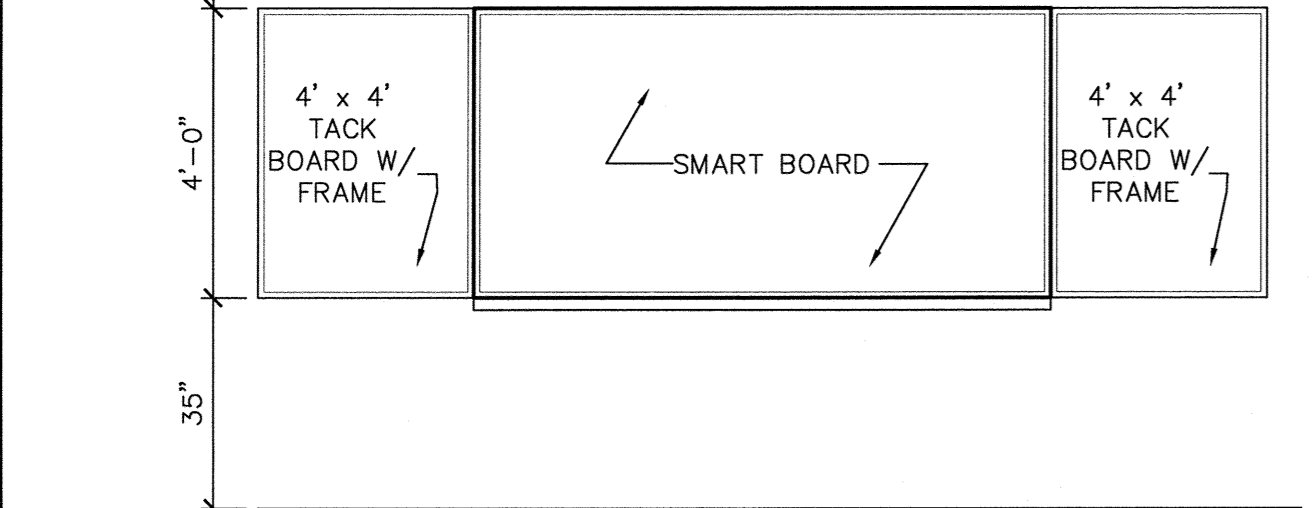
**THALES ACADEMY**  
Knightdale, North Carolina

Sheet Title  
**FIRST FLOOR PLAN & GENERAL NOTES**

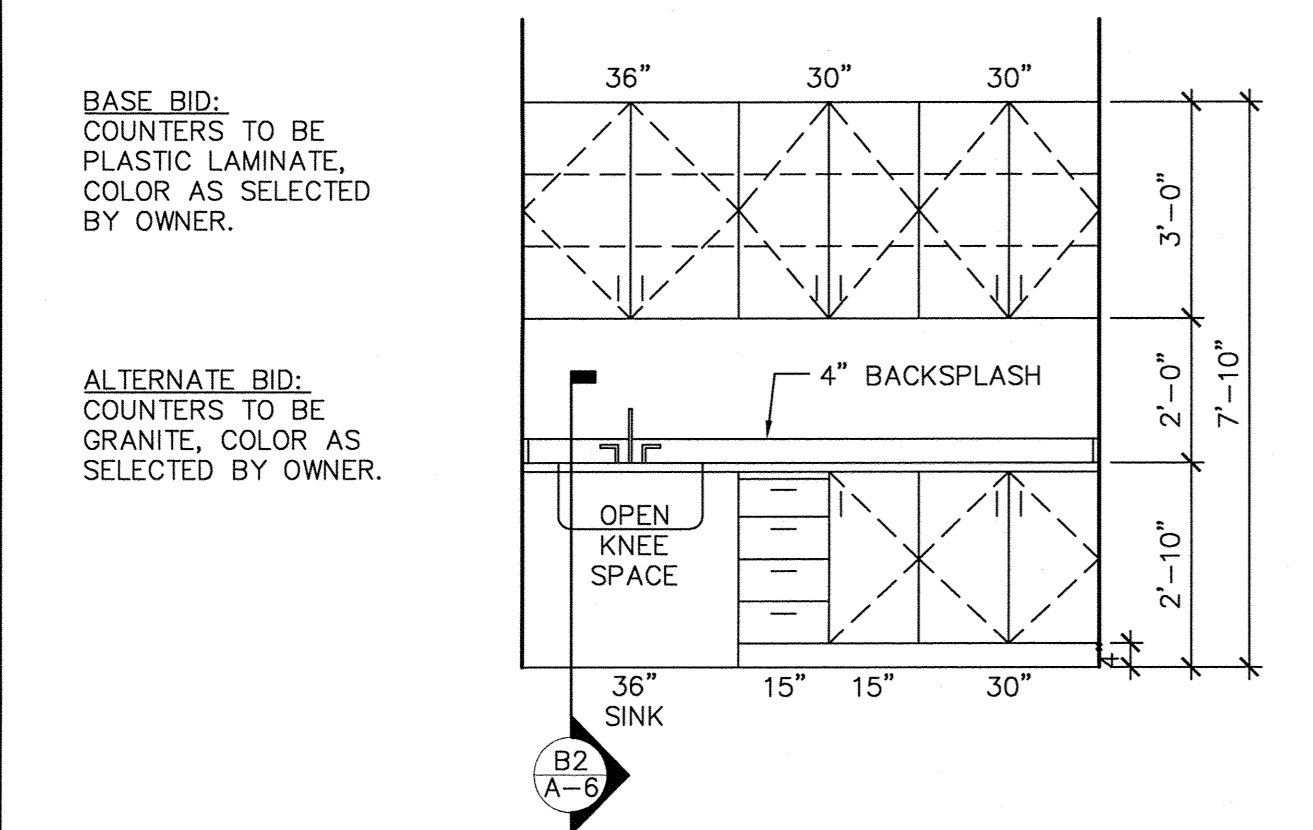
Project No. 14010 AS NOTED  
Revision 0 Drawing No. A-1



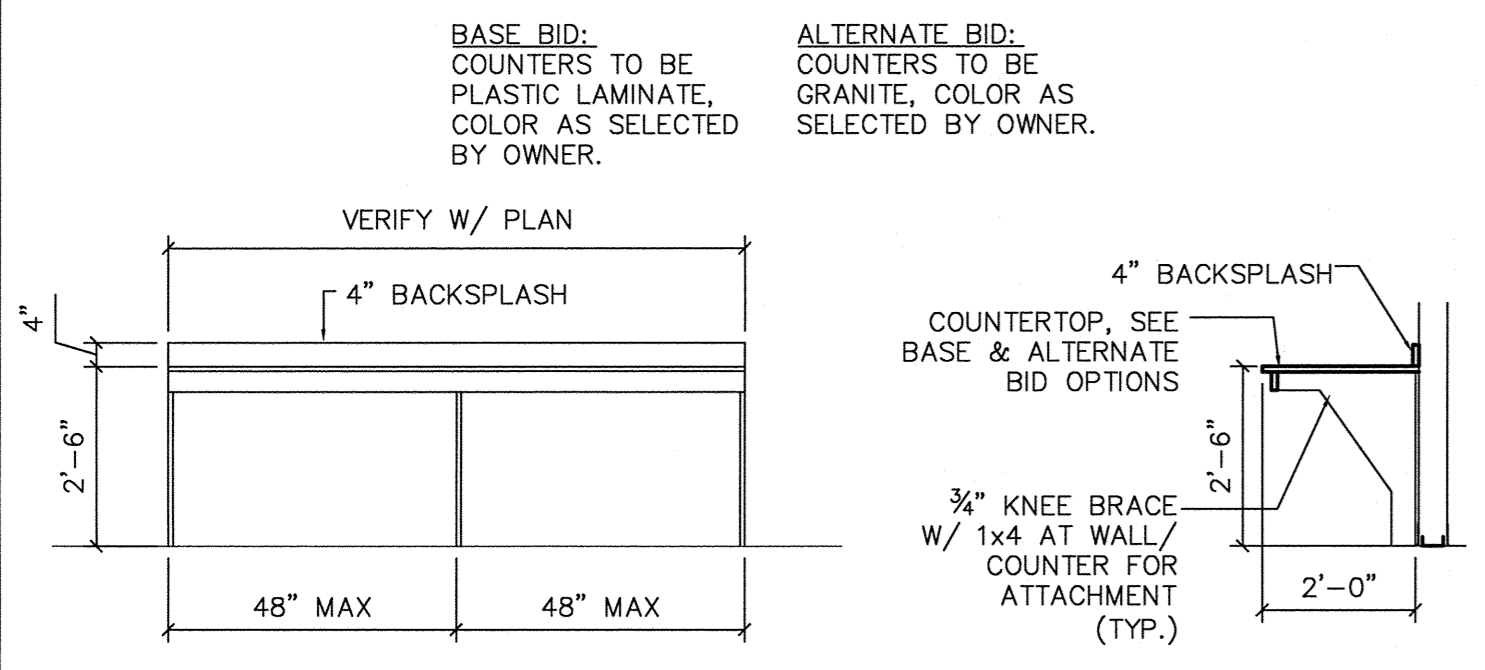
**D2 FIRST FLOOR PLAN**  
A-1 SCALE: 1/8" = 1'-0"



**A1 TYP. DISPLAY WALL ELEVATION**  
A-1 SCALE: 3/8" = 1'-0"



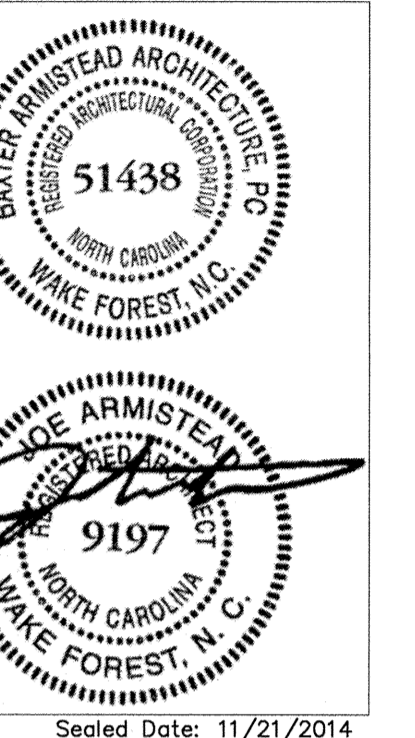
**B1 CLASSROOM CASEWORK**  
A-1 SCALE: 3/8" = 1'-0"



**C1 CLASSROOM COMPUTER COUNTER**  
A-1 SCALE: 3/8" = 1'-0"

- GENERAL NOTES:**
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING & FIELD VERIFYING ALL EXISTING CONDITIONS. CONTRACTOR SHALL REVIEW ALL CONST. DOCUMENTS (ALL DISCIPLINES) PRIOR TO THE START OF CONST. & REPORT ANY DISCREPANCIES TO THE ARCHITECT FOR CLARIFICATION.
  - ALL DIMENSIONS ARE NOMINAL UNLESS OTHERWISE INDICATED.
  - IN ALL CASES MAINTAIN AN 18" CLEAR SURFACE ADJACENT TO LATCH ON PULL SIDE OF DOORS. IF DOOR IS PROVIDED WITH CLOSER, ALSO MAINTAIN A 12" CLEAR SURFACE ADJACENT TO LATCH ON PUSH SIDE OF DOORS.
  - ALL CONSTRUCTION SHALL COMPLY WITH THE CITY OF RALEIGH REGULATIONS AND THE NC STATE BUILDING CODES.
  - MOUNT ROOM IDENTIFICATION & DIRECTIONAL SIGNAGE WITH RAISED CHARACTERS & BRAILLE 60" AFF TO THE CENTER OF SIGN ON THE LATCH SIDE OF DOORS.
  - FIELD VERIFY ALL DIMENSIONS.
  - COORDINATE ALL ARCHITECTURAL DRAWINGS W/ WORK OF OTHER DISCIPLINES.
  - PROVIDE ADEQUATE BLOCKING FOR ALL WALL MOUNTED EQUIP.
- WALL LEGEND:**
- INDICATES WALLS TO BE 3 3/8" METAL STUDS @ 16" O.C. W/ 3/8" GYP.BD. EACH SIDE TO DECK ABOVE.
  - INDICATES 1 HR RATED WALLS TO BE 3 3/8" METAL STUDS @ 16" O.C. W/ 3/8" GYP. BD. EACH SIDE, TO DECK ABOVE.
  - INDICATES BRACED BAY - FRAME AROUND BRACING W/ 8" METAL STUDS @ 16" O.C. W/ 3/8" GYP. BD. EA. SIDE TO DECK ABOVE.
  - INDICATES LOCATION OF SOUND BATT INSULATION: EXTEND FULL HEIGHT OF WALL. WALLS TO BE 3 3/8" METAL STUDS @ 16" O.C. W/ 3/8" GYP. BD. EACH SIDE.





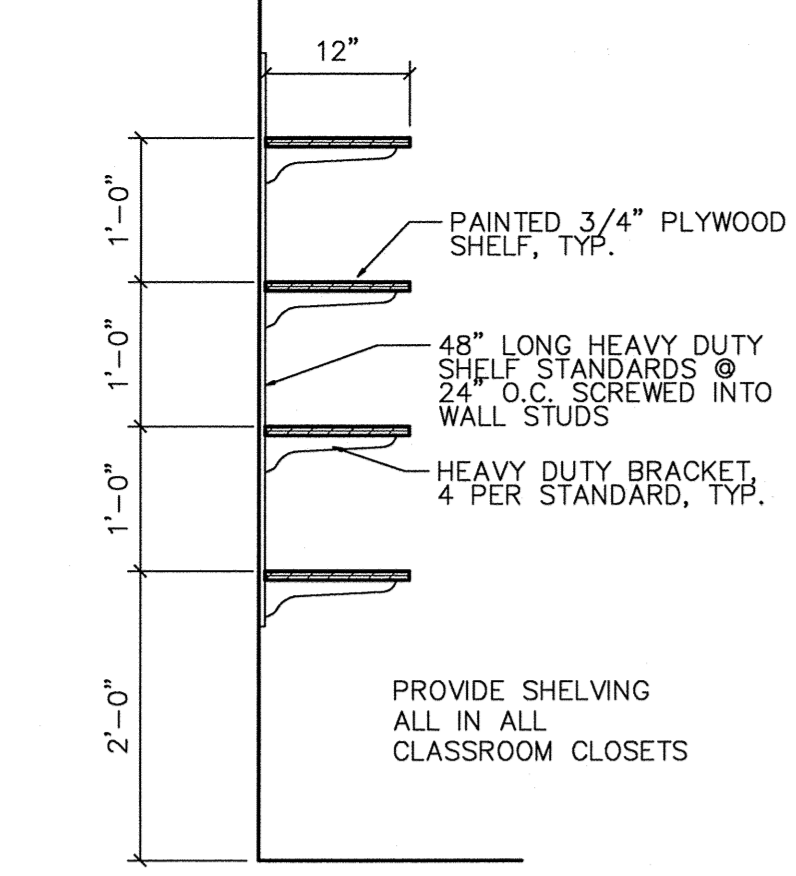
Sealed Date: 11/21/2014  
Consultants

TOWN CERTIFICATION: THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.  
BY: *[Signature]* DATE: 12/17/2014  
TOWN ENGINEER  
THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.  
BY: *[Signature]* DATE: 3/11/15  
ADMINISTRATOR

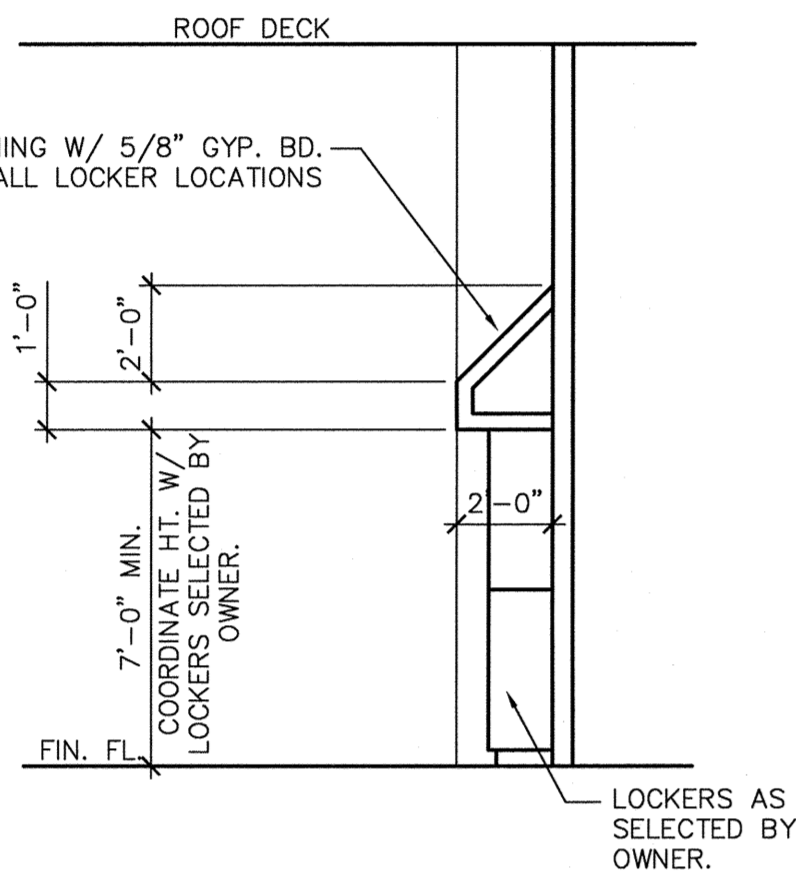
No.	Revision	Date
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2		
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0779 A-2.dwg  
File Name: CADE, Inc./  
Client/Project: THALES ACADEMY  
Knightdale, North Carolina  
Sheet Title: SECOND FLOOR PLAN & GENERAL NOTES  
Project No. 14010 AS NOTED  
Revision 0 Drawing No. A-2

**A1 CLOSET SHELF DETAIL**  
A-2 SCALE: 3/4" = 1'-0"

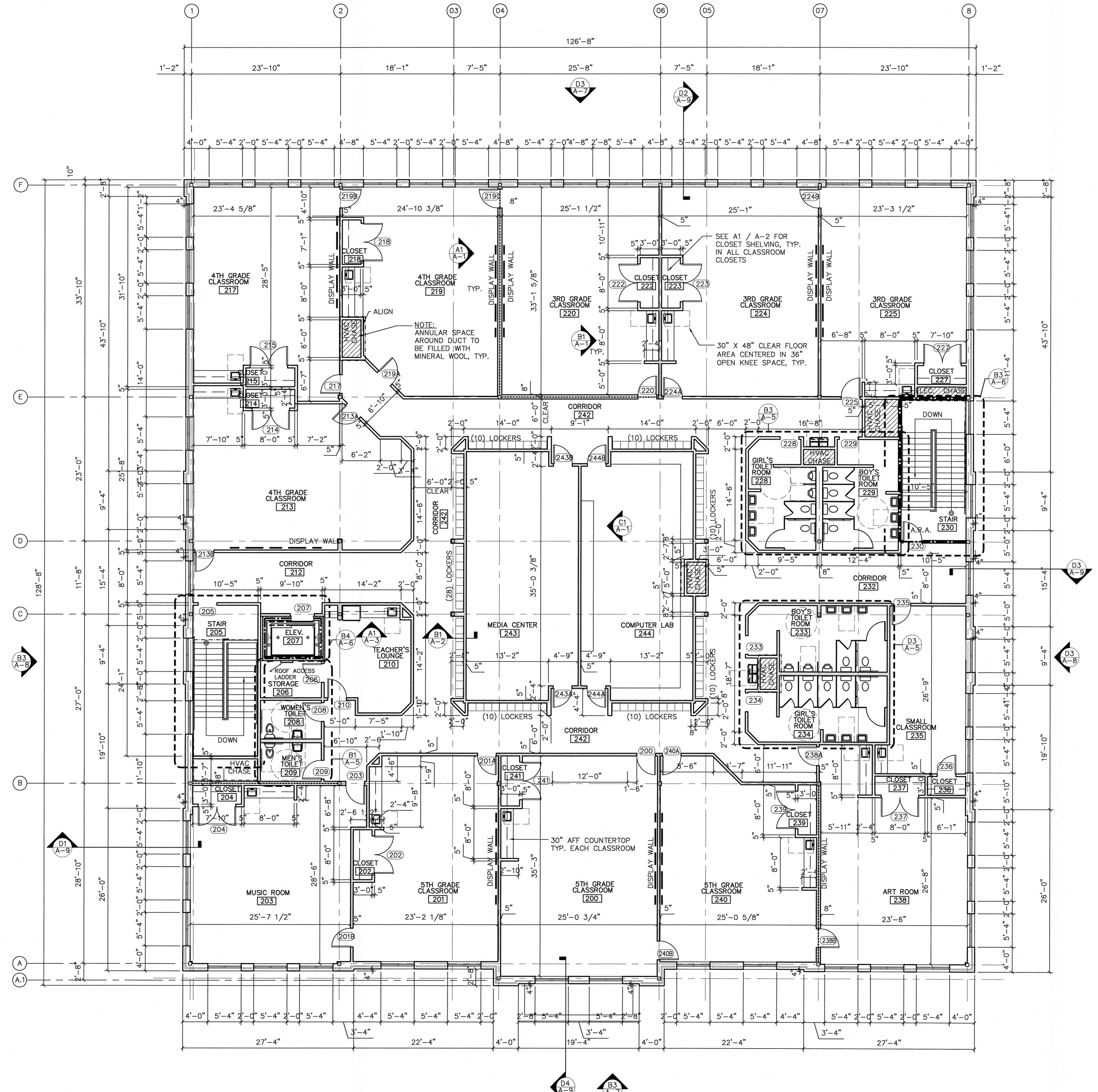


**B1 WALL SECTION @ LOCKERS**  
A-2 SCALE: 1/4" = 1'-0"



- GENERAL NOTES:**
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  - ALL DIMENSIONS ARE NOMINAL UNLESS OTHERWISE INDICATED.
  - IN ALL CASES MAINTAIN AN 18" CLEAR SURFACE ADJACENT TO LATCH ON PULL SIDE OF DOORS. IF DOOR IS PROVIDED WITH CLOSER, ALSO MAINTAIN A 12" CLEAR SURFACE ADJACENT TO LATCH ON PUSH SIDE OF DOORS.
  - ALL CONSTRUCTION SHALL COMPLY WITH THE CITY OF RALEIGH REGULATIONS AND THE NC STATE BUILDING CODES.
  - MOUNT ROOM IDENTIFICATION & DIRECTIONAL SIGNAGE WITH RAISED CHARACTERS & BRAILLE 60" AFF TO THE CENTER OF SIGN ON THE LATCH SIDE OF DOORS.
  - FIELD VERIFY ALL DIMENSIONS.
  - COORDINATE ALL ARCHITECTURAL DRAWINGS W/ WORK OF OTHER DISCIPLINES.
  - PROVIDE ADEQUATE BLOCKING FOR ALL WALL MOUNTED EQUIP.
- WALL LEGEND:**
- INDICATES WALLS TO BE 3 3/8" METAL STUDS @ 16" O.C. W/ 5/8" GYP. BD. EACH SIDE TO DECK ABOVE.
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  - INDICATES BRACED BAY - FRAME AROUND BRACING W/ 8" METAL STUDS @ 16" O.C. W/ 5/8" GYP. BD. EA. SIDE TO DECK ABOVE.
  - INDICATES LOCATION OF SOUND BATT INSULATION: EXTEND FULL HEIGHT OF WALL. WALLS TO BE 3 3/8" METAL STUDS @ 16" O.C. W/ 5/8" GYP. BD. EACH SIDE.

**D2 SECOND FLOOR PLAN**  
A-2 SCALE: 1/8" = 1'-0"

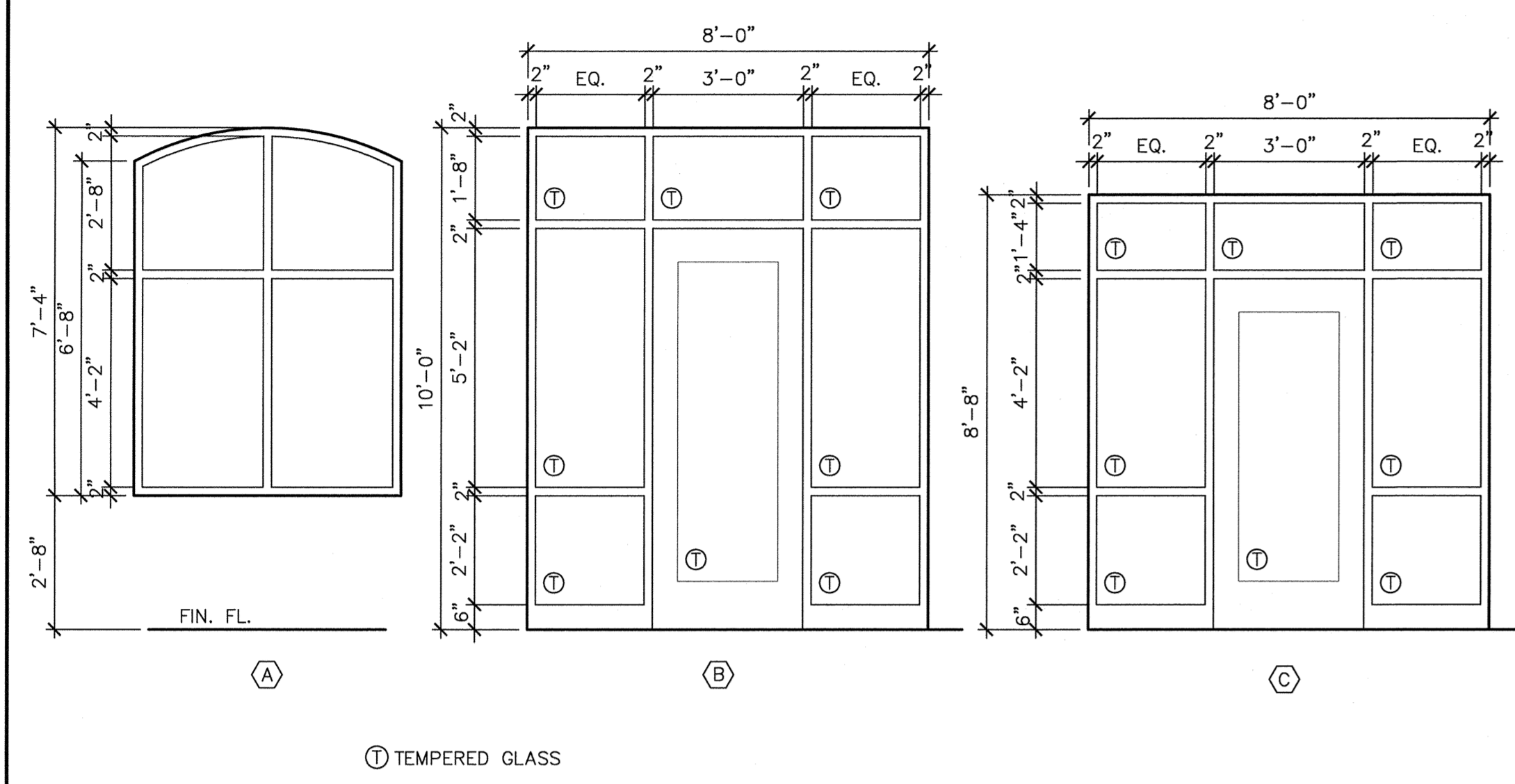




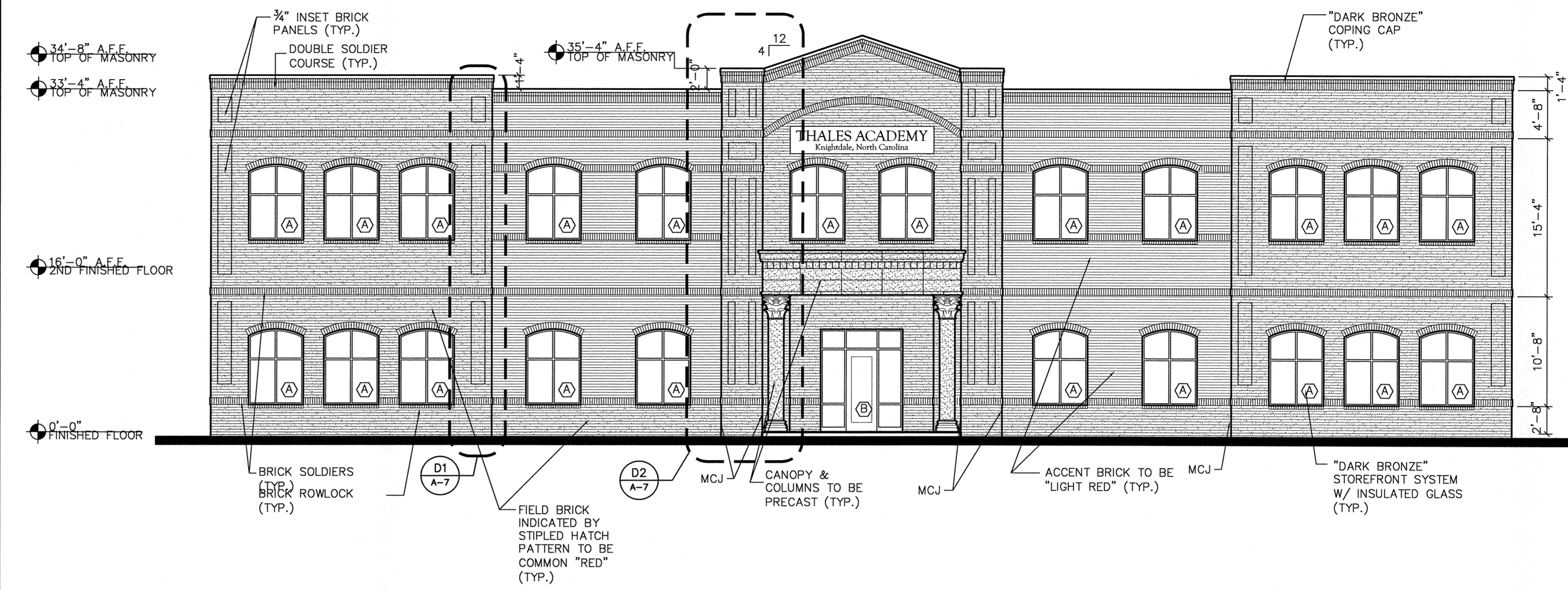


Sealed Date: 11/21/2014

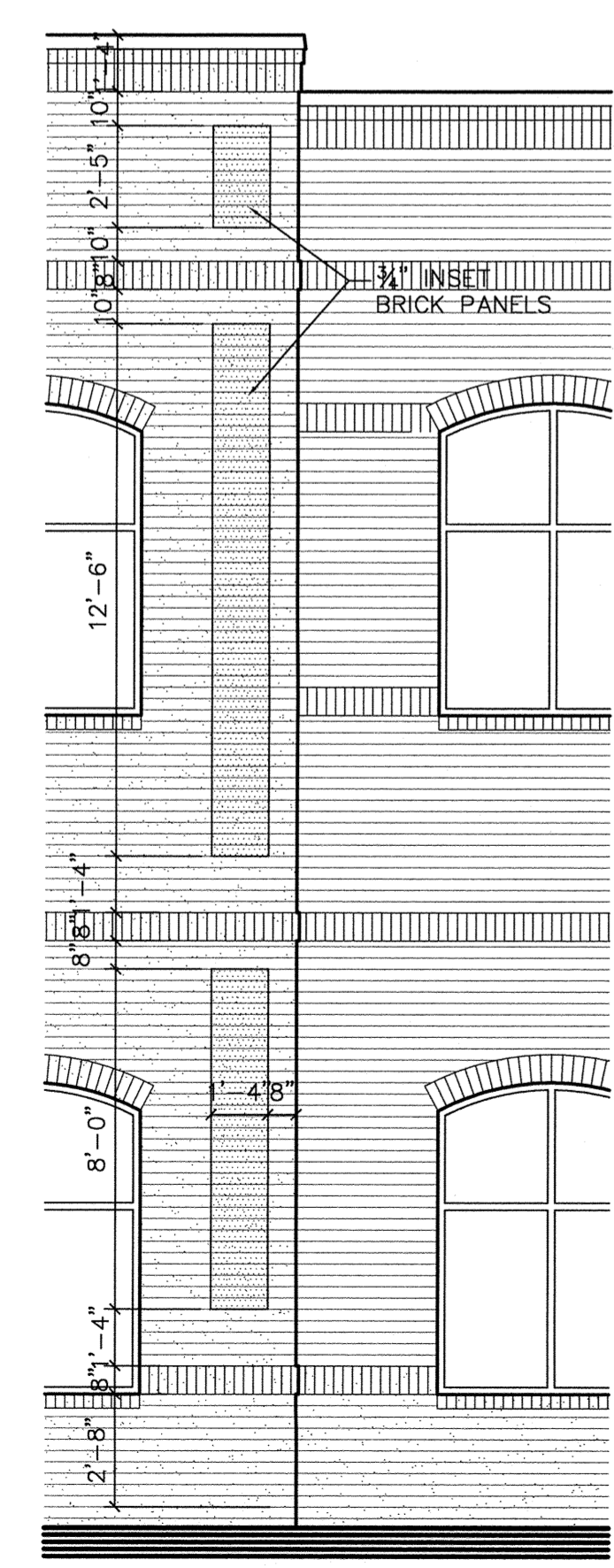
Consultants



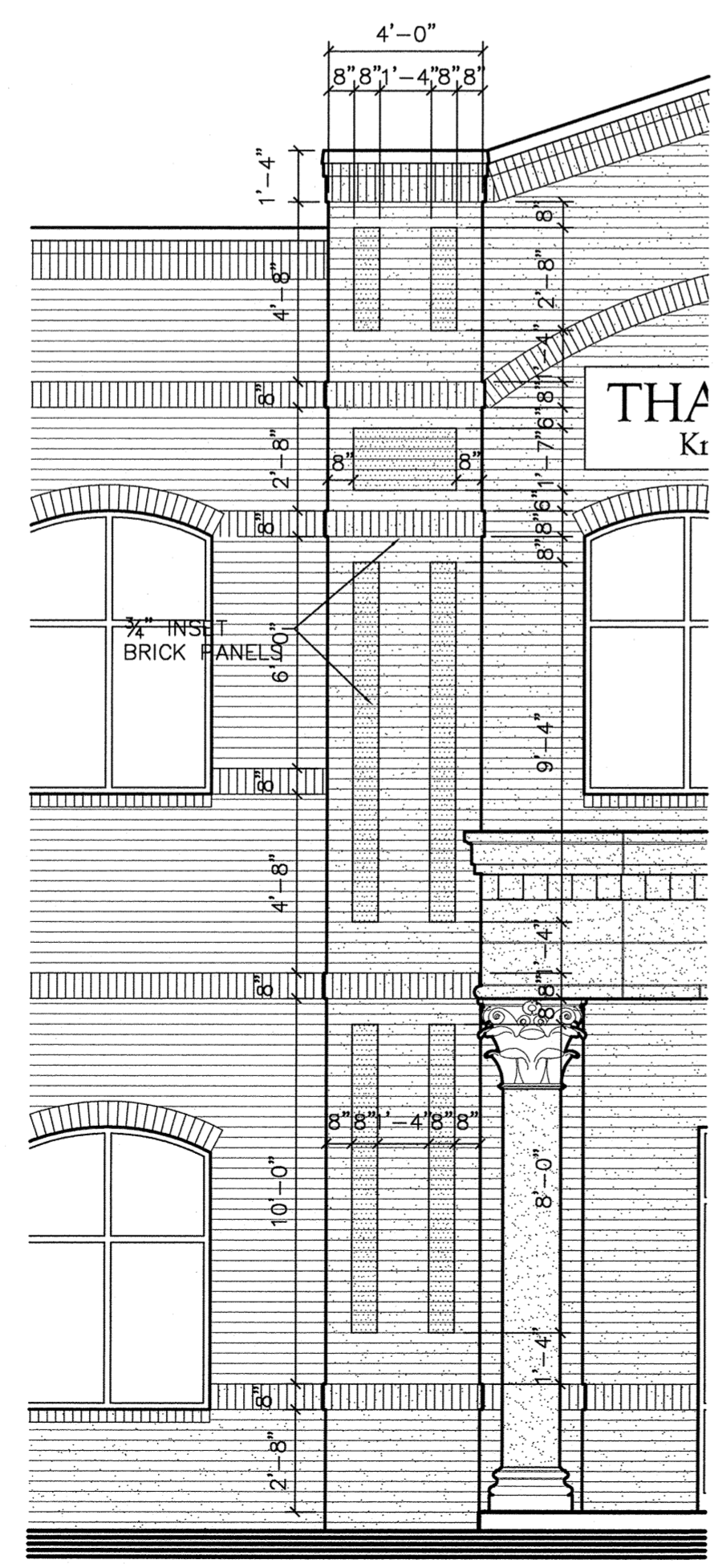
**B1 STOREFRONT ELEVATIONS**  
A-7 SCALE: 3/8" = 1'-0"



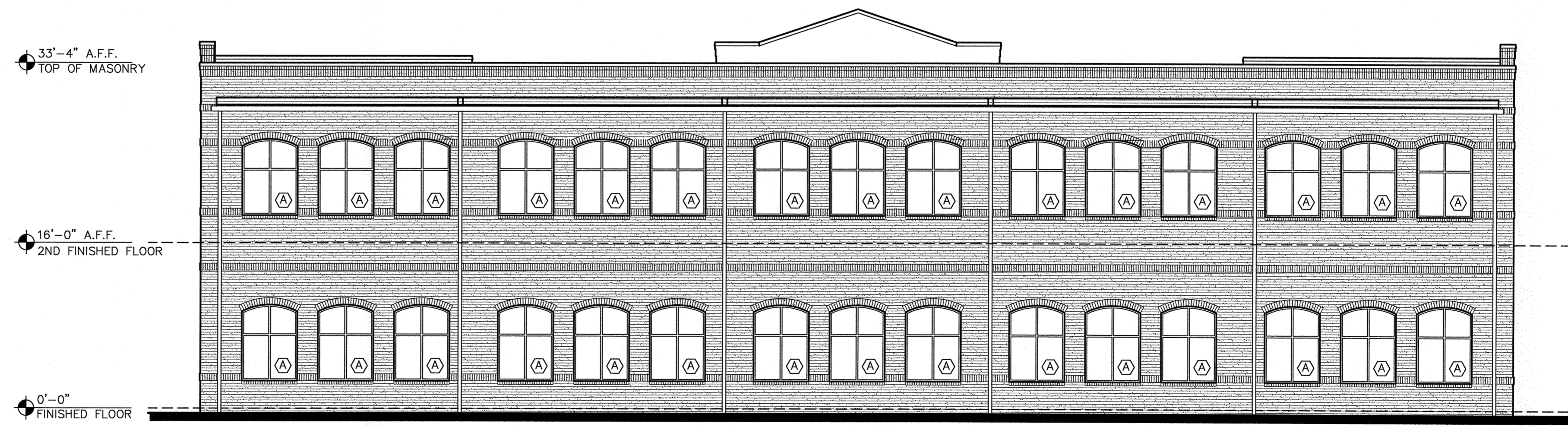
**B3 FRONT EXTERIOR ELEVATION**  
A-7 SCALE: 1/8" = 1'-0"



**D1 ELEVATION DETAIL**  
A-7 SCALE: 1/4" = 1'-0"



**D2 ENTRANCE ELEVATION DETAIL**  
A-7 SCALE: 1/4" = 1'-0"



**D3 REAR EXTERIOR ELEVATION**  
A-7 SCALE: 1/8" = 1'-0"

NOTE:  
SEE ELEVATION B3/A-7 FOR  
NOTING OF TYPICAL/  
SIMILAR CONDITIONS.

TOWN CERTIFICATION: THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE AND TO THE BEST OF MY KNOWLEDGE AND BELIEF IT CONFORMS TO THE REQUIREMENTS ESTABLISHED BY THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: *[Signature]* DATE: 2/14/2015

ADMINISTRATOR: *[Signature]* DATE: 3/11/15

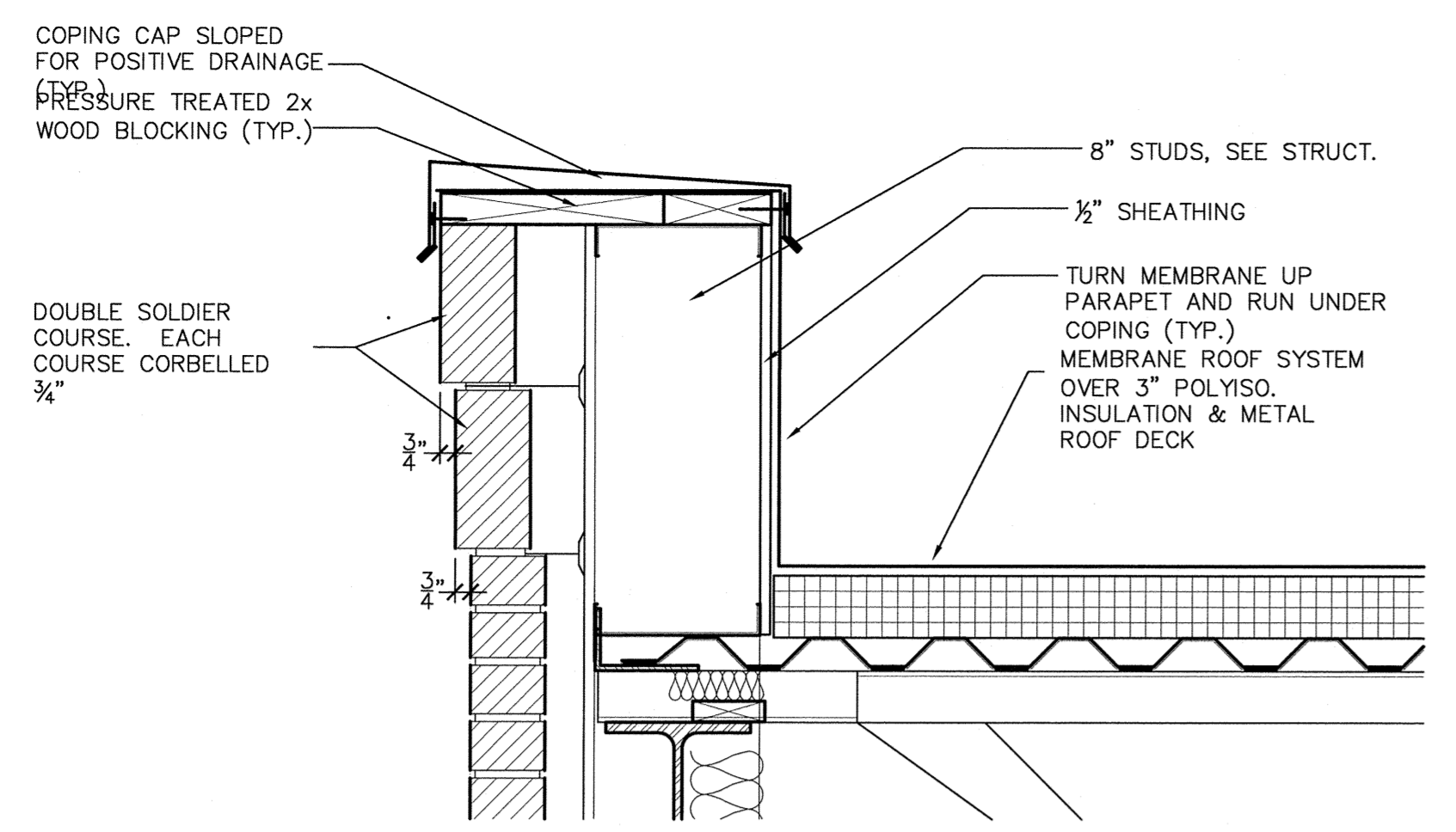
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1	Adi Town Certification Block	09/03/2014
2	Site Plan Approval Submit	06/09/2014

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Client/Project: CADE, Inc./  
THALES ACADEMY  
Knightdale, North Carolina  
Sheet Title: EXTERIOR ELEVATIONS  
Project No.: 14010 AS NOTED  
Revision: 0 Drawing No.: A-7

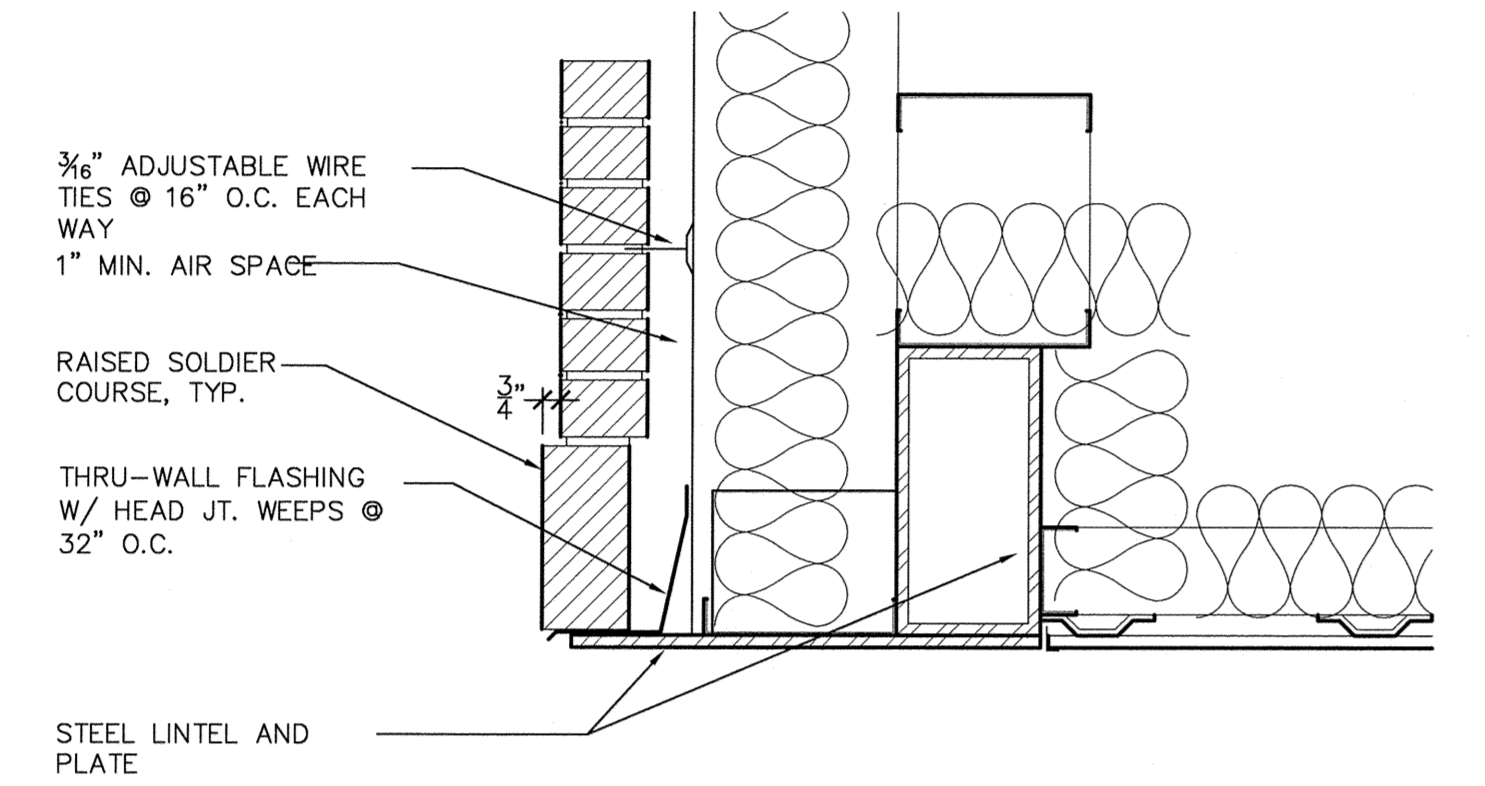




Sealed Date: 11/21/2014  
Consultants



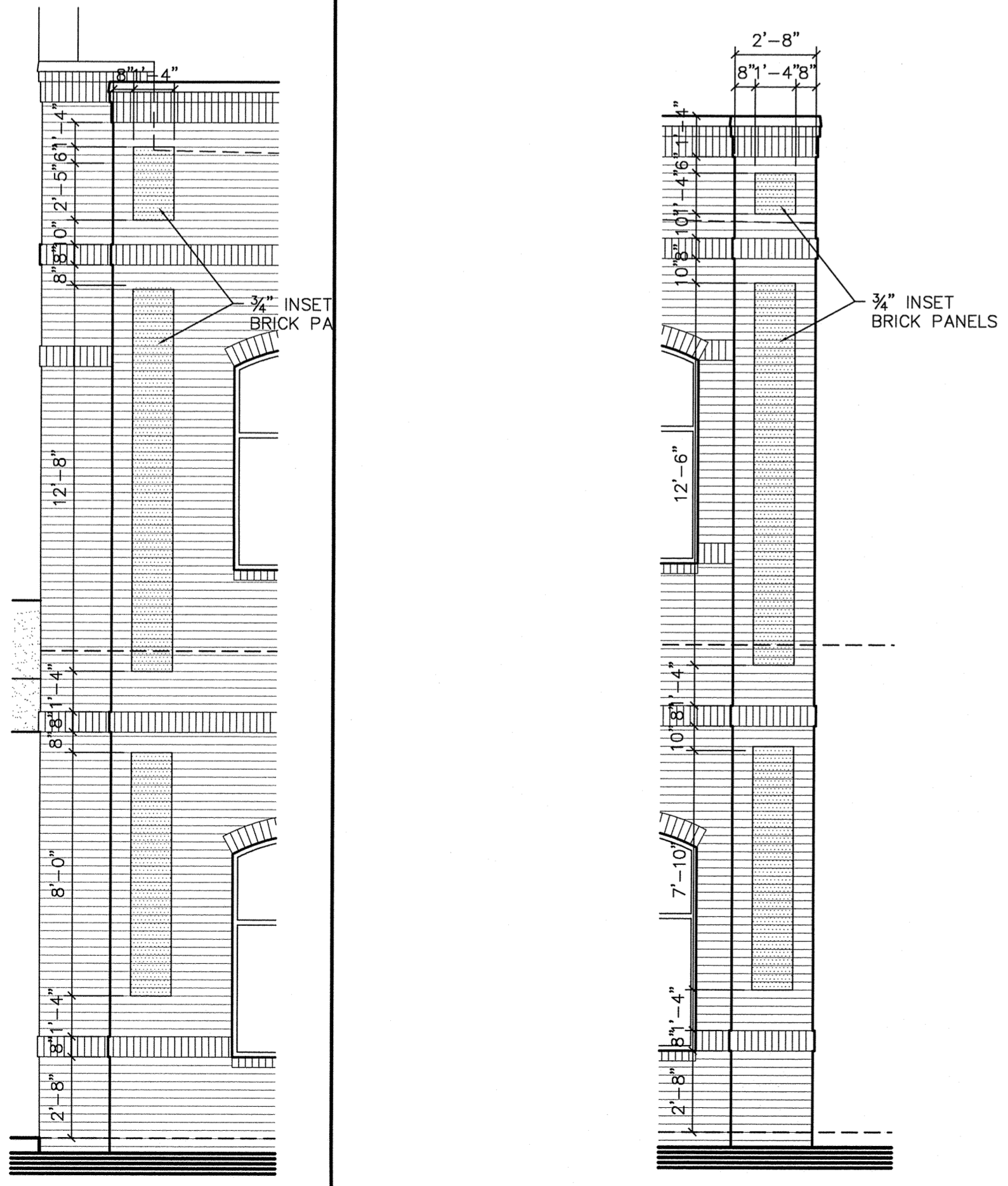
**A1 TYPICAL PARAPET DETAIL**  
A-B SCALE: 1 1/2" = 1'-0"



**B1 ENTRY LINTEL DETAIL**  
A-B SCALE: 1 1/2" = 1'-0"

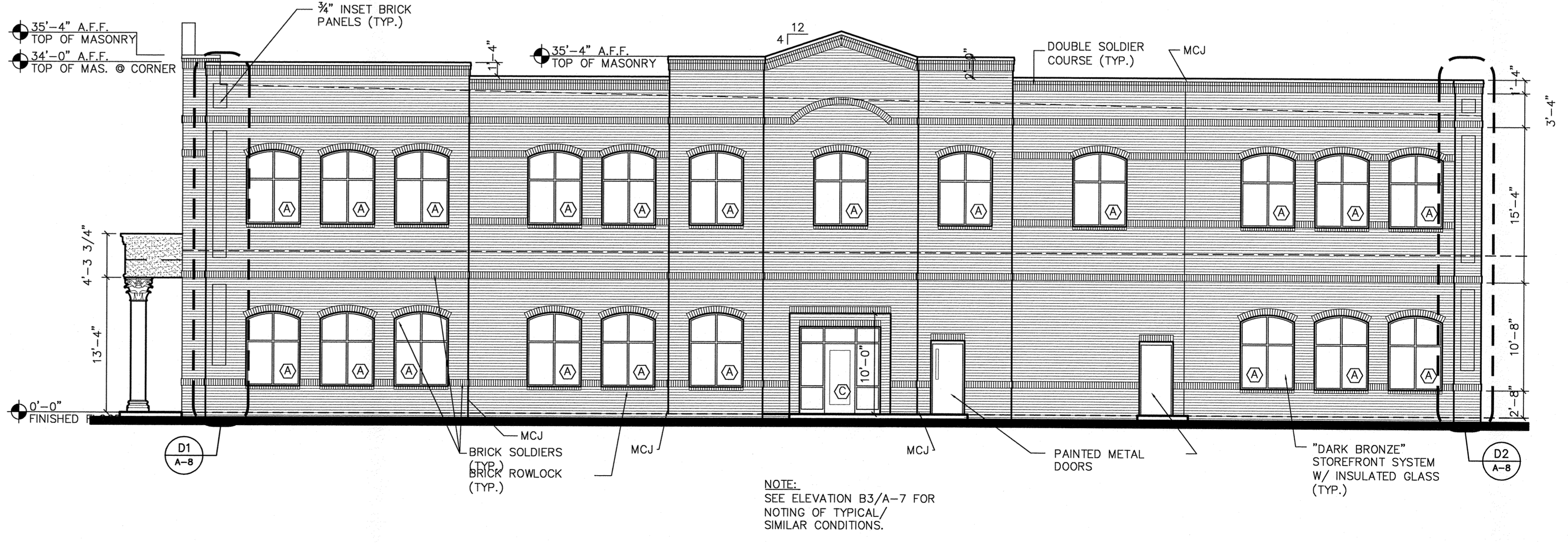


**B3 LEFT EXTERIOR ELEVATION**  
A-B SCALE: 1/8" = 1'-0"



**D1 ELEVATION DETAIL**  
A-B SCALE: 1/4" = 1'-0"

**D2 SIDE ELEVATION DETAIL**  
A-B SCALE: 1/4" = 1'-0"



**D3 RIGHT EXTERIOR ELEVATION**  
A-B SCALE: 1/8" = 1'-0"

TOWN CERTIFICATION: THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.  
By: [Signature] TOWN ENGINEER  
DATE: 11/17/2015  
These plans are approved by the TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.  
By: [Signature] TOWN ADMINISTRATOR  
DATE: 3/11/15

No.	Revision	Date
1	Issued for Permitting/Construction	11/21/2014
2	ADD Town Certification Block	09/03/2014
3	Site Plan Approval Submit	08/09/2014
4	Issued	

0792 A-8.dwg J. Armistead  
File Name: Drawn By  
Client/Project  
CAE, Inc./  
**THALES ACADEMY**  
Knightdale, North Carolina  
Sheet Title  
**EXTERIOR ELEVATIONS & DETAILS**  
Project No. 14010 AS NOTED  
Revision Drawing No.  
0 A-8