SPECIAL USE PERMIT APPLICATION

TOWN OF CHAPEL HILL
Planning Department
405 Martin Luther King Jr. Blvd.
Chapel Hill, NC 27514
phone (919) 969-5066 *fax* (919) 969-2014
www.townofchapelhill.org

Parcel Identifier Number (PIN): 9799-39-9116 and 9799-49-0235 Date February 5th, 2020

Section A: Project Information

Project Name: Christ Community Church

Property Address: 141 Erwin Road Zip Code: 27514

Use Groups (A, B, and/or C): B Existing Zoning District: R-2

Project Description: Demolish existing residence and existing day care and build one worship building of 11,420 sf with 117 parking spaces and associated stormwater controls and public improvements.

Section B: Applicant, Owner, and/or Contract Purchaser Information

Applicant Information (to whom correspondence will be mailed):

Name: Christ Community Church

Address: 1526 E. Franklin Street

City: Chapel Hill State: NC Zip Code: 27514

Phone: (919) 636-5258 Email: byron@cccpca.org

The undersigned applicant hereby certifies that, to the best of their knowledge and belief, all information supplied with this application and accurate.

Signature: Date: 2/4/2020

Owner/Contract Purchaser Information:

☐ **Owner** ☒ **Contract Purchaser**

Name: Christ Community Church

Address: 1526 E. Franklin Street

City: Chapel Hill State: NC Zip Code: 27514

Phone: 919-636-5258 Email: byron@cccpca.org

The undersigned applicant hereby certifies that, to the best of their knowledge and belief, all information supplied with this application and accurate.

Signature: Date: 2/4/2020

Click here for application submittal instructions.

PROJECT FACT SHEET

TOWN OF CHAPEL HILL
Planning Department

Section A: Project Information

Use Type: *(check/list all that apply)*

☒ Office/Institutional ☐ Residential ☐ Mixed-Use ☒ Other: PLACE OF WORSHIP

Overlay District: *(check all that apply)*

☐ Historic District ☐ Neighborhood Conservation District ☐ Airport Hazard Zone

Section B: Land Area

Net Land Area (NLA): Area within zoning lot boundaries		NLA=	111,645	sq. ft.
Choose one, or both, of the following (a or b), not to exceed 10% of NLA	a) Credited Street Area (total adjacent frontage) x ½ width of public right-of-way	CSA=	11,165	sq. ft.
	b) Credited Permanent Open Space (total adjacent frontage) x ½ public or dedicated open space	COS=		sq. ft.
TOTAL: NLA + CSA and/or COS = Gross Land Area (not to exceed NLA + 10%)		GLA=	122,810	sq. ft.

Section C: Special Protection Areas, Land Disturbance, and Impervious Area

Special Protection Areas: *(check all those that apply)*

☐ Jordan Buffer ☐ Resource Conservation District ☐ 100 Year Floodplain ☐ Watershed Protection District

Land Disturbance	**Total (sq. ft.)**
Area of Land Disturbance (Includes: Footprint of proposed activity plus work area envelope, staging area for materials, access/equipment paths, and all grading, including off-site clearing)	92,400
Area of Land Disturbance within RCD	None
Area of Land Disturbance within Jordan Buffer	None

Impervious Areas	**Existing (sq. ft.)**	**Demolition (sq. ft.)**	**Proposed (sq. ft.)**	**Total (sq. ft.)**
Impervious Surface Area (ISA)	9,690	9,666	51,949	51,973
Impervious Surface Ratio: Percent Impervious Surface Area of Gross Land Area (ISA/GLA)%	7.89	7.87	42.30	42.32
If located in Watershed Protection District, % of impervious surface on 7/1/1993	NA	NA	NA	NA

Section D: Dimensions

Dimensional Unit (sq. ft.)	Existing (sq. ft.)	Demolition (sq. ft.)	Proposed (sq. ft.)	Total (sq. ft.)
Number of Buildings	Seven ; 7,725 sf	Six ; 7,646 sf	One : 11,420 sf	Two ; 11,420 sf
Number of Floors	One and Two	One and Two	Two	One and Two
Recreational Space	None	None	None	None

Residential Space				
Dimensional Unit (sq. ft.)	**Existing (sq.ft.)**	**Demolition (sq. ft.)**	**Proposed (sq. ft.)**	**Total (sq. ft.)**
Floor Area (all floors – heated and unheated)	**4,551**	**4,551**	NONE	NONE
Total Square Footage of All Units				
Total Square Footage of Affordable Units				
Total Residential Density				
Number of Dwelling Units				
Number of Affordable Dwelling Units				
Number of Single Bedroom Units				
Number of Two Bedroom Units				
Number of Three Bedroom Units				

Non-Residential Space *(Gross Floor Area in Square Feet)*					
Use Type	**Existing**	**Proposed**	**Uses**	**Existing**	**Proposed**
Commercial	3,095 sf	0 sf			
Restaurant			**# of Seats**		
Government					
Institutional					
Medical					
Office					
Hotel			**# of Rooms**		
Industrial					
Place of Worship	**0 sf**	11,420 sf	**# of Seats**	None	250
Other					

Dimensional Requirements		Required by Ordinance	Existing	Proposed
Setbacks (minimum)	Street	26	39	30 (from new R/W)
	Interior (neighboring property lines)	11	25	25
	Solar (northern property line)	13	66	74
Height (maximum)	Primary	29	NA	16
	Secondary	50	31 (Approx)	50
Streets	Frontages	52	145	**239**
	Widths	65	131	252

Section F: Adjoining or Connecting Streets and Sidewalks

Note: For approval of proposed street names, contact the Engineering Department.

Street Name	Right-of-Way Width	Pavement Width	Number of Lanes	Existing Sidewalk*	Existing Curb/Gutter
Old Oxford Road	60	24	Two	☐ Yes	☐ Yes
Erwin Road	60	30	2/3	☐ Yes	☐ Yes

List Proposed Points of Access (Ex: Number, Street Name):

*If existing sidewalks do not exist and the applicant is adding sidewalks, please provide the following information:

Sidewalk Information			
Street Names	**Dimensions**	**Surface**	**Handicapped Ramps**
Old Oxford Road	5 ft	Conc	☒ Yes ☐ No ☐ N/A
Erwin Road	5 ft	Conc	☒ Yes ☐ No ☐ N/A

Section G: Parking Information

Parking Spaces	Minimum	Maximum	Proposed
Regular Spaces	50	125	112
Handicap Spaces	2	3	5
Total Spaces	52	128	117
Loading Spaces	NA	NA	NA
Bicycle Spaces	5	5	8
Surface Type	Asphalt		

Section H: Landscape Buffers

Location (North, South, Street, Etc.)	Minimum Width	Proposed Width	Alternate Buffer	Modify Buffer
North	20	40	☐ Yes	☐ Yes
South	10 (SHARED)	10 (SHARED)	☐ Yes	☒ Yes
East	30	30	☐ Yes	☐ Yes
West	20	30/26	☒ Yes	☐ Yes

Section I: Land Use Intensity

Existing Zoning District: R-2
Proposed Zoning Change *(if any)*:

Zoning – Area – Ratio			Impervious Surface Thresholds			Minimum and Maximum Limitations	
Zoning District(s)	**Floor Area Ratio (FAR)**	**Recreation Space Ratio (RSR)**	**Low Density Residential (0.24)**	**High Density Residential (0.50)**	**Non-Residential (0.70)**	**Maximum Floor Area (MFA) = FAR x GLA**	**Minimum Recreation Space (MSR) = RSR x GLA**
R-2	.093						
TOTAL	.093			NA	85,967	11,421	NA
RCD Streamside		0.01					
RCD Managed		0.019					
RCD Upland							

Section J: Utility Service

Check all that apply:

Water	☒ OWASA	☐ Individual Well	☐ Community Well	☐ Other
Sewer	☒ OWASA	☐ Individual Septic Tank	☐ Community Package Plant	☐ Other
Electrical	☒ Underground	☐ Above Ground		
Telephone	☒ Underground	☐ Above Ground		
Solid Waste	☒ Town	☐ Private		

SPECIAL USE PERMIT APPLICATION
SUBMITTAL REQUIREMENTS
TOWN OF CHAPEL HILL
Planning Department

The following must accompany your application. Failure to do so will result in your application being considered incomplete. For assistance with this application, please contact the Chapel Hill Planning Department (Planning) at (919) 969-5066 or at planning@townofchapelhill.org.

X	**Application fee** (including Engineering Review fee) (refer to fee schedule)	Amount Paid $	8,924.40
X	**Pre-application meeting** –with appropriate staff		
X	**Digital Files –** provide digital files of all plans and documents		
X	**Recorded Plat or Deed of Property**		
X	**Project Fact Sheet**		
X	**Traffic Impact Statement** – completed by Town's consultant (or exemption)		
X	**Description of Public Art Proposal**		
X	**Statement of Justification**		
X	**Response to Community Design Commission and Town Council Concept Plan comments**		
NA	**Affordable Housing Proposal, if applicable**		
NA	**Provide existing Special Use Permit, if Modification**		
X	**Mailing list of owners of property within 1,000 feet perimeter of subject property** (see GIS notification tool)		
X	**Mailing fee for above mailing list (mailing fee is double due to 2 mailings)**	Amount Paid $	
X	**Written Narrative describing the proposal**		
X	**Resource Conservation District, Floodplain, & Jordan Buffers Determination** – necessary for all submittals		
NA	**Jurisdictional Wetland Determination – if applicable**		
NA	**Resource Conservation District Encroachment Exemption or Variance (determined by Planning)**		
NA	**Jordan Buffer Authorization Certificate or Mitigation Plan Approval (determined by Planning)**		
X	**Reduced Site Plan Set (reduced to 8.5" x 11")**		

Stormwater Impact Statement (1 copy to be submitted)

a) Written narrative describing existing & proposed conditions, anticipated stormwater impacts and management structures and strategies to mitigate impacts
b) Description of land uses and area (in square footage)
c) Existing and proposed impervious surface area in square feet for all subareas and project area
d) Ground cover and uses information
e) Soil information (classification, infiltration rates, depth to groundwater and bedrock)
f) Time of concentration calculations and assumptions
g) Topography (2-foot contours)
h) Pertinent on-site and off-site drainage conditions
i) Upstream and/or downstream volumes
j) Discharges and velocities
k) Backwater elevations and effects on existing drainage conveyance facilities
l) Location of jurisdictional wetlands and regulatory FEMA Special Flood Hazard Areas
m) Water quality volume calculations
n) Drainage areas and sub-areas delineated
o) Peak discharge calculations and rates (1, 2, and 25-year storms)
p) Hydrographs for pre- & post-development without mitigation, post-development with mitigation
q) Volume calculations and documentation of retention for 2-year storm

r) 85% TSS removal for post-development stormwater runoff
s) Nutrient loading calculations
t) BMP sizing calculations
u) Pipe sizing calculations and schedule (include HGL & EGL calculations and profiles)

Plan Sets (10 copies to be submitted no larger than 24" x 36")

Plans should be legible and clearly drawn. All plan set sheets should include the following:

- Project Name
- Legend
- Labels
- North Arrow (North oriented toward top of page)
- Property boundaries with bearing and distances
- Scale (Engineering), denoted graphically and numerically
- Setbacks
- Streams, RCD Boundary, Jordan Riparian Buffer Boundary, Floodplain, and Wetlands Boundary, where applicable
- Revision dates and professional seals and signatures, as applicable

Cover Sheet

a) Include Project Name, Project fact information, PIN, and Design Team

Area Map

a) Project name, applicant, contact information, location, PIN, & legend
b) Dedicated open space, parks, greenways
c) Overlay Districts, if applicable
d) Property lines, zoning district boundaries, land uses, project names of site and surrounding properties, significant buildings, corporate limit lines
e) Existing roads (public & private), rights-of-way, sidewalks, driveways, vehicular parking areas, bicycle parking, handicapped parking, street names
f) 1,000' notification boundary

Existing Conditions Plan

a) Slopes, soils, environmental constraints, existing vegetation, and any existing land features
b) Location of all existing structures and uses
c) Existing property line and right-of-way lines
d) Existing utilities & easements including location & sizes of water, sewer, electrical, & drainage lines
e) Nearest fire hydrants
f) Nearest bus shelters and transit facilities
g) Existing topography at minimum 2-foot intervals and finished grade
h) Natural drainage features & water bodies, floodways, floodplain, RCD, Jordan Buffers & Watershed boundaries

Detailed Site Plan

a) Existing and proposed building locations
b) Description & analysis of adjacent land uses, roads, topography, soils, drainage patterns, environmental constraints, features, existing vegetation, vistas (on and off-site)
c) Location, arrangement, & dimension of vehicular parking, width of aisles and bays, angle of parking, number of spaces, handicapped parking, bicycle parking. Typical pavement sections & surface type.
d) Location of existing and proposed fire hydrants
e) Location and dimension of all vehicle entrances, exits, and drives
f) Dimensioned street cross-sections and rights-of-way widths
g) Pavement and curb & gutter construction details
h) Dimensioned sidewalk and tree lawn cross sections
i) Proposed transit improvements including bus pull-off and/or bus shelter
j) Required landscape buffers (or proposed alternate/modified buffers)
k) Required recreation area/space (including written statement of recreation plans)
l) Refuse collection facilities (existing and proposed) or shared dumpster agreement
m) Construction parking, staging, storage area, and construction trailer location
n) Sight distance triangles at intersections
o) Proposed location of street lights and underground utility lines and/or conduit lines to be installed
p) Easements
q) Clearing and construction limits
r) Traffic Calming Plan – detailed construction designs of devices proposed & associated sign & marking plan

Stormwater Management Plan

a) Topography (2-foot contours)
b) Existing drainage conditions
c) RCD and Jordan Riparian Buffer delineation and boundary (perennial & intermittent streams; note ephemeral streams on site)
d) Proposed drainage and stormwater conditions
e) Drainage conveyance system (piping)
f) Roof drains
g) Easements
h) BMP plans, dimensions, details, and cross-sections
i) Planting and stabilization plans and specifications

Landscape Protection Plan

a) Rare, specimen, and significant tree survey within 50 feet of construction area
b) Rare and specimen tree critical root zones
c) Rare and specimen trees proposed to be removed
d) Certified arborist tree evaluation, if applicable
e) Significant tree stand survey
f) Clearing limit line
g) Proposed tree protection/silt fence location
h) Pre-construction/demolition conference note
i) Landscape protection supervisor note
j) Existing and proposed tree canopy calculations, if applicable

Planting Plan

a) Dimensioned and labeled perimeter buffers
b) Off-site buffer easement, if applicable
c) Landscape buffer and parking lot planting plan (including planting strip between parking and building, entryway planting, and 35% shading requirement

Steep Slope Plan

a) Classify and quantify slopes 0-10%, 10-15%, 15-25%, and 25% and greater
b) Show and quantify areas of disturbance in each slope category
c) Provide/show specialized site design and construction techniques

Grading and Erosion Control Plan

a) Topography (2-foot contours)
b) Limits of Disturbance
c) Pertinent off-site drainage features
d) Existing and proposed impervious surface tallies

Streetscape Plan, if applicable

a) Public right-of-way existing conditions plan
b) Streetscape demolition plan
c) Streetscape proposed improvement plan
d) Streetscape proposed utility plan and details
e) Streetscape proposed pavement/sidewalk details
f) Streetscape proposed furnishing details
g) Streetscape proposed lighting detail

Solid Waste Plan

a) Preliminary Solid Waste Management Plan
b) Existing and proposed dumpster pads
c) Proposed dumpster pad layout design
d) Proposed heavy duty pavement locations and pavement construction detail
e) Preliminary shared dumpster agreement, if applicable

Construction Management Plan

a) Construction trailer location
b) Location of construction personnel parking and construction equipment parking
c) Location and size of staging and materials storage area
d) Description of emergency vehicle access to and around project site during construction
e) Delivery truck routes shown or noted on plan sheets

Energy Management Plan

a) Description of how project will be 20% more energy efficient than ASHRAE standards
b) Description of utilization of sustainable forms of energy (Solar, Wind, Hydroelectric, and Biofuels)
c) Participation in NC GreenPower program
d) Description of how project will ensure indoor air quality, adequate access to natural lighting, and allow for proposed utilization of sustainable energy
e) Description of how project will maintain commitment to energy efficiency and reduced carbon footprint over time
f) Description of how the project's Transportation Management Plan will support efforts to reduce energy consumption as it affects the community

Exterior Elevations

a) An outline of each elevation of the building, including the finished grade line along the foundation (height of building measured from mean natural grade)

CHRIST COMMUNITY CHURCH

December 12th, 2019

Revised March 5th, 2020

Findings of Fact and Requests by the Applicant to Town Council

A. **Project**: Christ Community Church

B. **Location**: 141 Erwin Road (Corner of Old Oxford and Erwin Roads)

C. **Type of Application**: Special Use Permit

D. **Summary of Project**: On the 2.56-acre parcel, the existing residential buildings and outbuildings will be removed and recycled to the extent practicable. A new 11,420 Church, consisting of a worship area, fellowship area, classrooms, and Church office is proposed. The site will include on-site parking, extensive stormwater controls, existing buffer trees and new plantings and fencing, and widening, curb and sidewalk along both Old Oxford and Erwin Road frontages. There will be no use on the site other than a worship facility.

E. **Findings of Fact**:

1. ***That the use or development is located, designed and proposed to be operated so as to maintain or promote the public health, safety and general welfare.***

   This application is for a worship facility with Sunday services; there will be a very small office staff of 1 to 3 persons during weekdays. There will be no daycare or school use.

   The Traffic Study shows there will be no change in level of service due to Christ Community Church. The Traffic Study recommends two (2) entrances, widening of Erwin Road with bike lane, and widening of Old Oxford along with public sidewalks along both streets. The SUP plans for the Church incorporate all these recommendations.

   An extensive underground Stormwater treatment and detention system, located under the parking lot, will control runoff rate and treat runoff to meet and exceed Town standards.

   When Concept Plans were submitted for this project, several neighbors predicted that Christ Community Church would be a "good neighbor". The Church is fully committed to realizing this expectation.

2. **That the use or development complies with all required regulations and standards of this chapter, including all applicable provisions of Articles 3 and 5, the applicable specific standards contained in the supplemental use regulations (Article 6), and with all other applicable regulations.**

   This project will comply with all TOCH regulations and standards. As discussed later in this statement, the Church requests Council permission to retain the 50-year-old, small outdoor storage shed with dirt floor in the southwest portion of the site to store yard equipment, so as to be able to maintain its 2.8-acre campus. Along its southern boundary with the proposed Summit Hospitality Group project, Town Council asked Christ Community Church to "work with" the adjoining project during the concept design process. This cooperation has resulted in requests by the Applicant to Town Council for a modified shared buffer, for the adjustment of the property line between the two projects, and for a fire lane connection between the two properties.

CHRIST COMMUNITY CHURCH

December 12th, 2019

Revised March 5th, 2020

3. **That the use or development is located, designed and proposed to be operated so as to maintain or enhance the value of contiguous property, or that the use or development is a public necessity:**

   At the Concept stage, neighbors expressed concern about stormwater runoff, traffic and building height and buffering. The submitted SUP plans and details for Christ Community Church address each of those concerns:

   - Larger areas of existing hardwoods and existing tree areas will be left undisturbed on the site as compared to the Concept Plan.
   - Treed buffers, planted buffers and fencing have been increased since the Concept Pan.
   - Impervious surface has been reduced by about 10% since the Concept Plan.
   - Extensive stormwater controls and curbing will be installed to address any offsite stormwater impacts.
   - The Traffic Study shows no traffic impact.
   - Building height has been reduced. This, along with the extensive existing trees to be saved, will result in the Church being well-screened from neighbors.

4. **That the use or development conforms with the general plans for the physical development of the town as embodied in this appendix and in the Comprehensive Plan.**

   This project will comply with all zoning standards for the existing R2 Zoning.

   With regard to Town Strategic Goals for 2020-2022, the SUP plans for Christ Community Church fully support the three (3) Council objectives for Environmental Stewardship:

   - The 7,646 SF of existing buildings to be removed will be recycled to the maximum extent possible.
   - Extensive stands of existing hardwoods and red cedars on site will be permanently preserved.
   - EV stations will be built as part of initial construction, with provisions made for an additional 20 EV stations which could be connected when circumstances warrant.
   - Extensive stormwater controls will protect neighbors, waterways, and preserve ecosystems.
   - Absolutely no stream buffer, RCD, wetland or any other environmentally sensitive areas will be impacted by this development.

   The Council Goal of increased connectivity will be achieved because of the extensive proposed public and private sidewalk system, the proposed bike lane on Erwin Road and the proposed covered bike spaces on site.

   Although meeting the spiritual needs of Chapel Hill residents may not be a "stated" Council Goal, Christ Community Church has held services for over a dozen years at a couple different locations in Chapel Hill. The Church is excited about the possibility of maintaining and enhancing its spiritual presence in the local community with its own, permanent worship building, and respectfully asks for the support and confidence of the Chapel Hill Town Council to approve this SUP application.

CHRIST COMMUNITY CHURCH

December 12th, 2019

Revised March 5th, 2020

F. Requests by the Applicant to Town Council for Modifications:

1. **Modified Buffer:** The existing 50-year-old outdoor storage shed, buffered by an existing 8' opaque wood fence and existing large pine and hardwood trees, is 26 feet from the property line and encroaches 4.8 feet into the required buffer. The Church respectfully asks that the existing 26-foot buffer, the existing mature trees and the existing fence be the approved by Council as an Alternate, Modified Buffer so that this shed can remain.

2. **Summit Hospitality Group Project**: The Church has met extensively with representatives of the Summit project over the past 16 months. Christ Community Church and Summit have agreed to cooperate and coordinate in the areas of the street widening for Erwin Road, stormwater, fire lane, and tree save areas along the southern boundary. The plans show a proposed adjustment to the property line between the two projects, providing a fire lane connection for Summit and, in particular, to provide a full-width shared Modified landscape buffer between Christ Community Church and the Summit project. The Church asks that Town Council recognize and support the extensive cooperation between the two projects by approving an SUP stipulation which modifies regulations to allow the Town Manager to approve all documents related to (a) adjusting the existing property line (LUMO article 4.5.5(b)(1), and (b) providing a Modified, shared landscape buffer (LUMO article 5.6.5), where the other half of the shared buffer will be provided at the time the adjacent property is developed.

3. **Cupola Height**: The overall height of the building and roof cupola have each been reduced in order to conform with LUMO article 3.8.3(b)(1). While the maximum height of the cupola as designed is within the limits defined by LUMO (15% maximum above core building height at vertical intersection of roof element and building envelope), the leading edge of the shortened cupola (facing Erwin Road) is now 9-¾" above the maximum height allowed. Since the cupola cannot be further shortened without eliminating windows on (2) of the 4 sides, and the cupola as designed is an important element of an architectural expression that has been generally well-received by neighbors, CDC, and the Town Council, we respectfully request that Town Council approve an SUP stipulation which modifies regulations to allow the height of the cupola to be approved as designed.

4. **Timetable**: Christ Community Church is very hopeful that an SUP for this important project will gain approval from the Town Council in the first quarter of 2020. Immediately after obtaining an SUP, the church will close on the property and have full title to the land, and will be able to alter the property line as described above. After purchase and closing, the Church must embark on a second fund raising campaign in order to acquire the money to design and build the 11,420 SF structure, the private improvements, and the proposed extensive public improvements.

   Because of the need for fundraising, the Church respectfully asks Council to approve an SUP Stipulation that will allow the Town Manager to approve a detailed Phasing Plan so that construction must begin within five (5) years after SUP approval and construction must be complete within eight (8) years after SUP approval, subject to all other provisions of LUMO with respect to time limits and time extensions.

PHILIP
POST
ENGINEERING

ENGINEERS
PLANNERS
SURVEYORS

104 St. Andrews Place
Chapel Hill, NC 27517

PO Box 4912
Chapel Hill, NC 27515-4912

FIRM: C-347

A) Comments from Community Design Commission on January 22, 2019

Comment	Response
Susanna Dancy	
1) Traffic concerns are outside our preview	We Agree
2) Building at the corner?	Building moved closer to corner
3) Not concerned about the height of the building, because churches are landmark/civic structures	Acknowledge
4) I like the parking in the back, and the layout for connections	We Agree
5) RI/RO – may need full intersection	RI/RO eliminated; full intersection now proposed
Lucy Carol Davis	
1) I like it	We Agree
2) Don't see the height of the building as an issue	Acknowledge
3)I like the landscape along the road	We Agree
4) I like the parking in the back; like porches – break up height	We Agree
5) I don't see rush hour traffic as a factor	Acknowledge
6) So far, I like what I see	Acknowledge
Chris Berndt	
1) Clarification: Is the height 56 feet at the rear, and 40-something at the front?	Yes 56ft rear; about 43ft at front
2) I like the design; it fits with the topography and the neighborhood	We Agree

Chris Berndt (continued)

3) Biggest concern is storm water..... Acknowledge

4) Have you considered pervious parking? ..... Poorly drained soils on site will not allow pervious paving to work

5) Need details of second building ..... Second building has been eliminated

6) Access points: Will main access be from Erwin Road? ..... Yes
Prevent being a "cut-thru" to Marriott..... Traffic Study allows only emergency Connection

Megan Patnaik

1) I like the proposed use of the property ..... We Agree

2) I like the pedestrian-friendly rear of the building. ..... We Agree

3) Can better pedestrian access be added to the front? ..... Good pedestrian access has been added from Erwin sidewalk to the Church

Ted Hoskins

1) I like the design ..... We Agree

2) I'm not troubled by the height of the building; ..... Acknowledge
it's consistent with a civic use

3) I am intrigued by Chris' comment about access ..... See response to Chris Berndt

4) Might you improve drainage beyond the ..... We have designed the storm detention to
minimum requirement as a trade for R3 rezoning? Exceed Town Standards

Polly Van De Velde

1) I like the design ..... We Agree

2) Many trees removed ..... We have increased trees to be saved along all four sides of the site

3) Can you implement "rain gardens"? ..... We tried, but rain gardens will not Provide enough storage to reduce Runoff to below pre-development levels

4) Can you use cross- parking ? ..... Town Traffic Study prohibits cross-parking

5) Regarding Phase 2: I have a little problem ..... Phase 2 has been eliminated
approving something without seeing it

6) Right In/Right Out a concern ..... RI/RO eliminated

Susan Lyons

1) I really like appearance of the building; a really good fit..... We Agree

2) I'm concerned about the storm water ..... We have designed the storm detention
To exceed Town Standards

3) Trees in the buffer area ..... We have increased trees to be saved
Along all four sides of the site

Voulker (Chairman)

1) I really like the building ..... Acknowledge

2) I'm concerned about the parking – the runoff from ..... The storm system will mitigate storm
Stormwater – so I'd like to see that improved with flows to a greater extent than Town
Measures beyond the minimum Standards

3) If Phase 2 is harmonized with this present design, ... Phase 2 has been eliminated
then I can foresee a great project

4) As for future use, I think we need to take what ..... Thank you
has been presented on good faith

5) Want to see buffer replanted..... We have saved many existing trees
in the bufferyards.

PHILIP POST ENGINEERING

ENGINEERS
PLANNERS
SURVEYORS

104 St. Andrews Place
Chapel Hill, NC 27517

PO Box 4912
Chapel Hill, NC 27515-4912

FIRM: C-347

B) Comments from Town Council on March 20, 2019

Comment	Response
Michael Parker	
1) Not enough parking, but too much Impervious	We have increased the parking and reduced the impervious surface area
2) Move building?	We moved the building north
3) When will second building be built?	We have dropped the second building
4) Study entrance off Erwin	The Traffic Study recommends a full intersection off Erwin and we agree.
5) Is this project eligible for Conditional Zoning?	No, it is not eligible
Hongbin Gu	
1) For rezoning, must make the case	There is no rezoning involved
2) Can building fit into R2?	Yes, that is exactly what we have done.
3) Take building one step at a time; wait until R3 needed	Yes, we will wait until additional room is needed.
4) Parking and flood issues	We have improved parking based on Council suggestions and we propose a stormwater solution which will go above and beyond Town Standards
Alan Baunsi	
1) Like design of building	We Agree
2) Do simple first	We Agree
3) How many attend services?	Currently about 165; the worship area in the proposed building will seat 250
4) What will second building look like?	Second building has been dropped.

Karen Stegman

1) Parking, need tree preservation..... We have increased parking, saved trees on all four (4) sides and have reduced impervious surface.

2) Check impervious ..... See answer to #1

3) Large buffer to neighborhood ..... We have saved trees and increased the buffer to the neighborhood

4) Need Traffic Study for volumes ..... Traffic Study shows no traffic impact from this project

5) Like idea of neighborhood access to the playground ..... We Agree.

Nancy Oates

1) This may be the best project for the neighborhood..... We Agree.

2) Curve on Erwin ..... Erwin Road will be widened; the curve Is completely off our site

3) Can hotel be overflow? ..... The Traffic Study prohibits any shared parking

4) Like the design ..... We Agree

5) Build Phase 2 when it's needed. Build what you can now..... We Agree.

Pam Heminger

1) Continue dealing with neighbors ..... We agree and are doing so.

2) Church will be a good neighbor ..... We Agree.

3) Traffic Study needed ..... We Agree.

4) Impervious needs to be looked at ..... Impervious surface has been reduced.

5) Concerned about second building ..... Second building has been dropped

Council

Pam Heminger (Continued)

6)	Two entrances	The Traffic Study recommends two (2) full entrances and we agree
7)	Work with Marriott about parking	We are cooperating about emergency Access, but the Traffic Study prohibits Cross-parking

CHRIST COMMUNITY CHURCH

September 6, 2019

Special Use Permit Narrative: Energy Management Plan

This project will reduce energy consumption in a number of important ways:

Solar orientation: there is a balcony and large roof overhang along the SW side of the structure that will serve to minimize heat gain in the summer months, while allowing for solar penetration/ heat gain in the winter months, thus reducing energy use year round.

Building siting: locating the ground floor below the finished grade for entire NE edge of the building will serve to provide significant insulation value, reducing energy required for heating and cooling.

Daylighting: large windows with insulating glazing combined with proper shading will be used to provide access to natural light while reducing solar heat gain, thus reducing costs associated with artificial lighting.

Construction- transportation: to the greatest extent feasible, the church will seek to use locally-sourced construction materials for this project in order to reduce energy consumption required for transport.

Construction- materials: to the greatest extent feasible, the church will seek to use sustainably-sourced and recycled building and finish materials, thus reducing latent energy costs.

HVAC and Lighting: mechanical and electrical systems will be designed to provide a minimum of 10% energy savings in excess of the standards required by ASHRAE 90.1 (2010). Strategies will include high-efficiency mechanical systems, generous building insulation, and maximum use of LED lighting fixtures.

CHRIST COMMUNITY CHURCH

September 6, 2019

Special Use Permit Narrative: Public Art Program

The applicant seeks to provide a worship facility that will be attractive, sensitive to existing landforms and neighboring structures, and welcoming to visitors by car, bike, or foot. No additional public art is currently proposed for the project, but we do believe that the massing and detailing of the building itself will project an iconography that is aesthetically pleasing and appropriate to its location along the Erwin Road corridor.

CHRIST COMMUNITY CHURCH
SPECIAL USE PERMIT

CHAPEL HILL, ORANGE COUNTY, NORTH CAROLINA

JULY 15, 2019

141 ERWIN ROAD, CHAPEL HILL, N.C.
PIN# 9799-39-9116 AND 9799-49-0235

SUBMITTAL #1: AUGUST 28, 2019
SUBMITTAL #2: NOVEMBER 17, 2019
SUBMITTAL #3: JANUARY 17, 2020
REVISION #4 JANUARY 27, 2020
REVISION #5 FEBRUARY 9, 2020
REVISION #6 FEBRUARY 26, 2020

PREPARED FOR:

CHRIST COMMUNITY CHURCH

1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514
TEL. (919) 636-5258
EMAIL: byron@cccpca.org

NW VIEW (OLD OXFORD AERIAL)

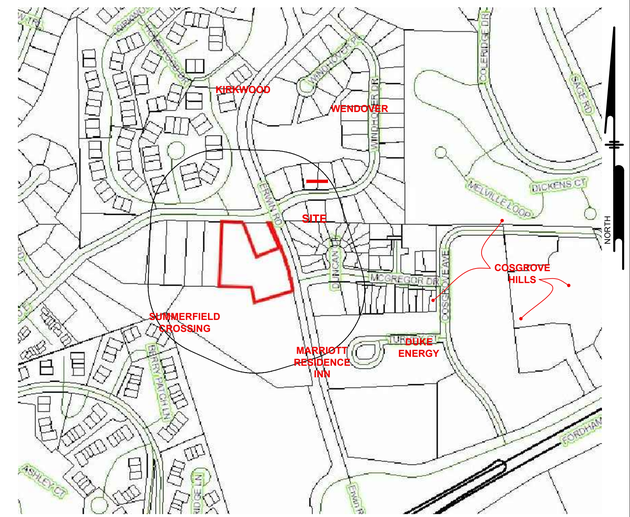
NE VIEW (ERWIN & OLD OXFORD)

SE VIEW (ERWIN ROAD)

SW VIEW (PARKING)

BUILDING PERSPECTIVES

SHEET LIST TABLE	
SHT. #	SHEET TITLE
C001A	COVER SHEET AND AREA MAP
C001B	NOTES
C002	EXISTING CONDITIONS PLAN
C003	DEMOLITION & LANDSCAPE PROTECTION PLAN
C004	SITE PLAN
C005	SITE GRADING & DRAINAGE PLAN
C006	CONSTRUCTION MANAGEMENT & LAND SWAP PLAN
C007	SITE DETAILS
C008	STORMWATER FILTERA DETAILS
C009	EROSION CONTROL PLAN
C010	EROSION CONTROL DETAILS
C011	UTILITY PLAN & FIRE DEPT. FDC
C012	UTILITY AND DRIVEWAY ENTRANCE DETAILS
C013	SLOPE ANALYSIS PLAN
C014	ERWIN ROAD - NCDOT PLAN & FIRE LANE PLAN
L001	LANDSCAPE PLAN & DETAILS
A003	BUILDING ELEVATIONS



AREA MAP

ARCHITECT
HARRISON ARCHITECTURAL, PA
309-A WEST GEER STREET
DURHAM, N.C. 27701
(919) 949-4830
harrisonarchpa@gmail.com

CIVIL ENGINEER
PHILIP POST ENGINEERING, INC.
PHILIP N. POST, PE, PLS
PO BOX 4912
CHAPEL HILL, N.C. 27515
TEL. (919) 818-7862
philip.n.post@gmail.com

LANDSCAPE ARCHITECT
DAVID SWANSON, RLA
SWANSON + ASSOCIATES, PA
100 EASET CARR STREET
CARRBORO, N.C. 27510
(919) 929-9000
david@swansonlandscapearchitecture.com

PROJECT DATA

GROSS LAND AREA: 122,810 SF
EXISTING ZONING: R2
EXISTING GROUP B; DAYCARE & RESIDENTIAL
PROPOSED USE GROUP B; PLACE OF WORSHIP
PROPOSED PARKING: 117 SPACES
PROPOSED BICYCLE SPACES: 8 SPACES
EXISTING IMPERVIOUS: 9,690 SF
PROPOSED IMPERVIOUS: 51,949 SF
EXISTING FLOOR AREA TO BE DEMOLISHED; 7,646 SF
PROPOSED FLOOR AREA: 11,420 SF
PROPOSED WORSHIP SEATING: 250 PERSONS
TOTAL DISTURBED AREA ON SITE = 76,445 SF (1.755 AC.)
TOTAL DISTURBED AREA IN R/W = 10,158 SF (0.233 AC)

PRELIMINARY NOT FOR CONSTRUCTION

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PO Box 4912
Chapel Hill, NC 27515

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CHRIST COMMUNITY CHURCH
141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-39-9116 AND 9799-49-0235
COVER SHEET AND AREA MAP
APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

#	#	#	#
2/26/2020	6	NCDOT AND TOWN COMMENTS	DC
2-9-2020	5	TOWN COMMENTS	#DC
1-27-2020	4	PROPERTY LINE SWAP	DC
1-17-2020	3	SUBMITTAL #2 COMMENTS	DC
12-27-2019	2	OWASA 11/13/2019 COMMENTS	DC
11-17-2019	1	SUBMITTAL #1 COMMENTS	DC
DATE	NO.	REVISIONS	BY

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PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	-
DRAWN BY	DC
APPROVED BY	PP

C001A

C:\ACAD Folders\Projects\CCC\C001A.dwg PLOTTED: 2/26/2020 4:55 PM, BY: Donald Chilly PLOTSTYLE: cpa.ctb PROJECT STATUS: ---

Orange County Solid Waste Standard Plan Notes (Construction Waste):

OCSW Construction Waste Requirements:

1. All existing structures 500 square feet and larger shall be assessed prior to the issuance of a demolition permit to ensure compliance with the County's Regulated Recyclable Materials Ordinance (RRMO) and to assess the potential for deconstruction and/or the reuse of salvageable materials. Contact the Orange County SW Enforcement Officer at 919-968-2788 to arrange for the assessment.

2. Pursuant to the County's RRMO, clean wood waste, scrap metal, and corrugated cardboard present in construction or demolition waste must be recycled.

3. Pursuant to the County's RRMO, all haulers of mixed construction and demolition waste which includes any regulated recyclable materials shall be licensed by Orange County.

4. Prior to any demolition or construction activity on the site, the applicant shall hold a pre-demolition/pre-construction conference with Solid Waste staff. This may be the same preconstruction meeting held with other development/enforcement officials.

5. The presence if any asbestos containing materials ('ACM') and/or other hazardous materials shall be handled in accordance with any and all local, state, and federal regulations and guidelines.

STANDARD TOWN NOTES:

1. Buildings to be demolished must be inspected by a NC accredited asbestos professional. Submit report with demo permit application.
2. Asbestos abatement must be performed by a NC accredited asbestos professional.
3. Separate demo permit is required.
4. Written OWASA approval is required for any installations of: backflow preventers, grease traps, oil/water separators, water meters, elevator sump pumps
5. Confirm the address of your project with Chapel Hill GIS. Once you have written confirmation, then those address numbers must be a minimum of 6 inches high and of contrasting color to their background. Reflective numbers are preferred and required on front and rear doors of strip shopping centers. When the distance from the street or fire department access lane to the front or address side of the building exceeds 25 feet, larger numbers are required. 26 feet to 50 feet shall have 8 inch numbers, 51-75 feet shall have 12 inch numbers and over 75 feet shall have 18 inch numbers. Where access is by private means of a private road and the building cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure.
6. Any retaining walls over five (5) feet high shall be permitted separately from the building(s) and must be signed by a design professional.
7. Provide onsite parking for inspectors at each building for the duration of the construction project.
8. Provide a tire wash for trucks onsite before they hit the main roads. Curb & gutter and first lift of asphalt for access roads must be down ahead of construction.
9. A single electrical service shall be provided to serve the structure with the exception of the fire pump. Article 230.2 (A) 2017 edition of North Carolina Electric Code.
10. Accessibility Requirements: That prior to issuance of a Certificate of Occupancy, the applicant shall provide the minimum required handicapped parking spaces and design all handicapped parking spaces, ramps, and crosswalks, and associated infrastructure according to Americans with Disabilities Act standards, North Carolina Building Code, American National Standards Institute (ANSI) Code, and Town standard.
    - Parking - number of spaces to comply with NCBC 2018 section 1106.1, 1 per 6 compliant spaces or portion thereof must be van accessible, No slope to exceed 2% in any direction. Signage per NC requirements, MUT-CD and ICC A 117.1.
    - Curb cuts and accessible routes Per ICC A117.1 2009 Ed. Cross slope limited to 2%, call for inspection before placement of concrete.
    - Slope greater than 5% requires construction as a ramp.
11. Cross slope on accessible routes cannot exceed 2%. Slope in excess of 5% constitutes a ramp, requiring hand rails, guards and edge protection per code. Cross slope on accessible parking and loading areas not to exceed 2%, call for inspection before placement of any concrete. All public access site features must meet ICC/ANSI A117.1.
12. Parking - Accessible parking per NCBC sect 1106.1; 1 per 6 compliant spaces must be van accessible, no slope exceeding 2% in any direction. Signage per NC requirements and ICC A 117.1.
13. A separate submittal and permit will be required for the construction trailer.
14. A fire sprinkler system will be required for this project per town ordinance 7-56.
15. A fire hydrant will be required within 100 feet of the fire department connection (FDC).
16. A door from the exterior will be required to immediately access the fire sprinkler riser room.
17. A separate submittal and permit will be required for any signage on the building or ground mounted signs
18. FIRE DEPARTMENT ACCESS: All turns, radii, bridges, and depressions within roadways shall be designed and constructed to be accessible by the largest fire apparatus operated by the Town of Chapel Hill. Technical information on this equipment is available from the Towns Fire Marshal. 2018 NCFC Section 503, Appendix D.
19. FIRE DEPARTMENT ACCESS/CONSTRUCTION: Fencing around projects shall include access gates with a 20 foot swing or slide motion. Any areas which will be inaccessible for firefighting or rescue operations shall be noted. Emergency access designation for apparatus shall be provided. 2018 NCFC Section 503, Appendix D.
20. FIRE DEPARTMENT ACCESS/CONSTRUCTION: During construction, vehicle access for firefighting shall be provided. Temporary street signs shall be installed at each street intersection when construction allows the passage of vehicles. Signs shall be of an approved size, weather resistant, and maintained until replaced by permanent signs. 2018 NCFC Section 505.2
21. OBSTRUCTION OF FIRE APPARATUS ACCESS ROADS. Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established in Sections 503.2.1 and 503.2.2 shall be maintained at all times. 2018 NCFC 503.4
22. TRAFFIC CALMING DEVICES. Traffic calming devices shall be prohibited unless approved by the fire code official. 2018 NCFC 503.4.1
23. WATER SUPPLY FOR FIRE PROTECTION: When required. An approved water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible material arrives on the site. 2018 NCFC 3312
24. FIRE APPARATUS ACCESS ROADS; 503.1 Where required. Fire apparatus access roads shall be provided and maintained in accordance with Sections 503.1.1 through 503.1.3
    503.1.1 Buildings and facilities. Approved fire apparatus access roads shall be provided for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.
    Exceptions:
    1. The fire code official is authorized to increase the dimension of 150 feet (45720 mm) where any of the following conditions occur:
    1.1. When the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 the dimension shall increase to a minimum of 200 feet (60960 mm).
    1.2 Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades, or other similar conditions, and an approved alternative means of fire protection is provided.
    1.3. There are not more than two Group R-3 or Group U occupancies.
    2. The fire code official is authorized to modify or exempt fire apparatus access roads for solar photovoltaic power generation facilities. 2018 NCFC Section 503
25. GRADE AND APPROACH; 503.2.7 Grade. The grade of the fire apparatus access road shall be within the limits established by the fire code official based on the fire department's apparatus.
    503.2.8 Angles of approach and departure. The angles of approach and departure for fire apparatus access roads shall be within the limits established by the fire code official based on the fire department's apparatus.
    D 103.2 Grade. Fire apparatus access roads shall not exceed 10 percent in grade.
    Exception: Grades steeper than 10 percent as approved by the fire chief. 2018 NCFC Section 503 and Appendix D.
26. FIRE APPARATUS ACCESS ROADS AUTHORITY; 503.2. Authority. The fire code official shall have the authority to require or permit modifications to the required access widths where they are inadequate for fire or rescue operations or where necessary to meet the public safety objectives of the jurisdiction. 2018 NCFC Section 503
27. GATES AND BARRICADES; 03.5 Required gates or barricades. The fire code official is authorized to require the installation and maintenance of gates or other approved barricades across fire apparatus access roads, trails, or other accessways; not including public streets, alleys, or highways. Electric gate operators, where provided, shall be listed in accordance with UL 325. Gates intended for automatic operation shall be designed, constructed, and installed to comply with the requirements of ASTM F2200. 2018 NCFC Section 503 and Appendix D103
28. FIRE LANES; Where required by the fire code official, approved signs or other approved notices or markings that include the words NO PARKING-FIRE LANE shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. The means by which fire lanes are designated shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility. 2018 NCFC Section 503.3 and Appendix D D 103.6, D 1036.1, D 103.6.2
29. DEVELOPMENTS; D104.1 Buildings exceeding three stories or 30 feet in height. Buildings or facilities exceeding 30 feet (9144 mm) or three stories in height shall have at least two means of fire apparatus access for each structure.
    D104.2 Buildings exceeding 62,000 square feet in area. Buildings or facilities having a gross building area of more than 62,000 square feet (5760 nr) shall be provided with two separate and approved fire apparatus access roads.
    Exception: Projects having a gross building area of up to 124,000 square feet (11520 m2) that have a single approved fire apparatus access road when all buildings are equipped throughout with approved automatic sprinkler systems.
    D104.3 Remoteness. Where two fire apparatus access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the lot or area to be served, measured in a straight line between accesses. 2018 NCFC Appendix D104
30. AERIAL FIRE APPARATUS ACCESS ROADS; D105.1 Where required. Where the vertical distance between the grade plane and the highest roof surface exceeds 30 feet (9144 mm), approved aerial fire apparatus access roads shall be provided. For purposes of this section, the highest roof surface shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is greater.
    D105.2 Width. Aerial fire apparatus access roads a minimum unobstructed width of 26 feet (7925 mm), exclusive of shoulders, in the immediate vicinity of the building or portion thereof.
    D105.3 Proximity to building. At least one of the required access routes meeting this condition shall be located within a minimum of 15 ft (4572 mm) and a maximum of 30 feet (9144) from the building, and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial fire apparatus access road is positioned or shall be approved by the fire code official.
    D105.4 Obstructions. Overhead utility and power lines shall not be located over the aerial fire apparatus access road or between the aerial fire apparatus road and the building. Other obstructions shall be permitted to be placed with the approval of the fire code official. 2018 NCFC Appendix D105
31. ADDRESS IDENTIFICATION; 505.1 Address identification. New and existing buildings shall be provided with approved address identification. The address identification shall be legible and placed in a position that is visible from the street or road front the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall not be spelled out. Each character shall be not less than 6 inches (153 mm) high with a minimum stroke width of 3/4 inch (2Q mm). Where required by the fire code official, address identification shall be provided in additional approved locations to facilitate emergency response. Where access is by means of a private road and the building cannot be viewed from the public way, a monument, pole, or other sign or means shall be used to identify the structure. Address identification shall be maintained. 2018 NCFC 505.1
32. KEY BOXES; 506.1 Where required. Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type listed in accordance with UL 1037, and shall contain keys to gain necessary access as required by the fire code official. 2018 NCFC 506.1
33. SPRINKLERS: Any building with more than 6000 sf of floor space is required to have a sprinkler system. Town Ordinance 7-56.
34. FIRE PROTECTION AND UTILITY PLAN; Shall include the fire flow report: for a hydrant within 500' of each building, provide the calculated gallons per minute of with a residual pressure of 20 pounds per square inch. The calculations should be sealed by a professional engineer licensed in the State of NC and accompanied by a water supply flow test conducted within one year of the submittal. Reference Town Design Manual for required gallons per minute. *(Fire)*
35. FIRE DEPARTMENT CONNECTIONS, LOCATIONS; Any required FDCs for any buildings shall meet the design and installation requirements for the current, approved edition of NFPA 13, 13D, 13R, or 14 of the NCFC and Town Ordinances; 7-38 for location. FDCs shall be installed on the street/address side f the building and within 100' of a hydrant or unless otherwise approved by the fire code official and shall not be obstructed or hindered by parking or landscaping.
36. FIRE DEPARTMENT CONNECTIONS, INSTALLATION; A working space of not less than 36" in width and depth and a working space of 78" in height shall be provided on all sides with the exception of wall mounted FDCs unless otherwise approved by the fire code official. The FDCs where required must be physically protected by an approved barrier from impacts. 2018 NCFC Section 912
37. CONSTRUCTION/DEMOLITION; All Construction and demolition conducted shall be in compliance of the current edition of the NC Fire Code. 2018 NCFC Chapter 33
38. NCFPC Section 510. Emergency responder radio coverage in new buildings. All new buildings shall have approved radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.
39. A travel management plan (TMP) wil be submitted as part of ZCP Construction plans.
40. CDC Review of Elevations, Lighting plan and Alternative buffers is required.
41. FIRE DEPARTMENT CONNECTIONS, LOCATIONS; Any required FDCs for any buildings shall meet the design and installation requirements for the current, approved edition of NFPA 13, 13D, 13R, or 14 of the NCFC and Town Ordinances; 7-38 for location. FDCs shall be installed on the street/address side of the building and within 100' of a hydrant or unless otherwise approved by the fire code official and shall not be obstructed or hindered by parking or landscaping.
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PRELIMINARY NOT FOR CONSTRUCTION

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PHILIP POST ENGINEERING
FIRM: C-347

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CHRIST COMMUNITY CHURCH

141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-39-9116 AND 9799-49-0235

NOTES

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

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2/26/2020	6	NCDOT AND TOWN COMMENTS	DC
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PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	-
DRAWN BY	DC
APPROVED BY	PP

C001B

SHEET 1 OF 16

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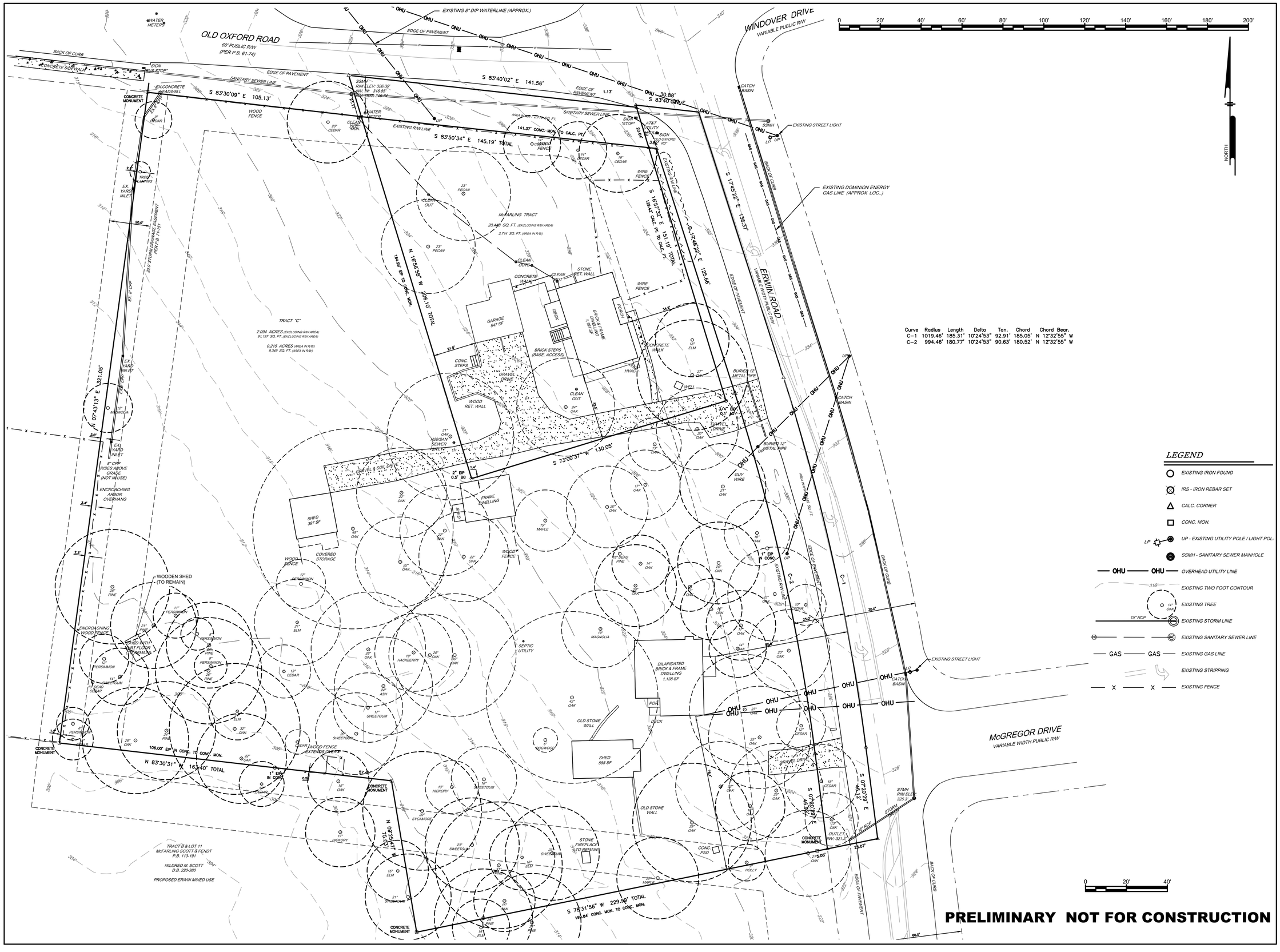

Curve	Radius	Length	Delta	Tan.	Chord	Chord Bear.
C-1	1019.46'	185.31'	10°24'53"	92.91'	185.05'	N 12°32'55" W
C-2	994.46'	180.77'	10°24'53"	90.63'	180.52'	N 12°32'55" W

LEGEND

- EXISTING IRON FOUND
- IRS - IRON REBAR SET
- CALC. CORNER
- CONC. MON.
- UP - EXISTING UTILITY POLE / LIGHT POL.
- SSMH - SANITARY SEWER MANHOLE
- OHU — OHU — OVERHEAD UTILITY LINE
- EXISTING TWO FOOT CONTOUR
- EXISTING TREE
- 15" RCP — EXISTING STORM LINE
- EXISTING SANITARY SEWER LINE
- GAS — GAS — EXISTING GAS LINE
- EXISTING STRIPPING
- X — X — EXISTING FENCE

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CHRIST COMMUNITY CHURCH

141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-39-9116 AND 9799-49-0235

EXISTING CONDITIONS PLAN

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

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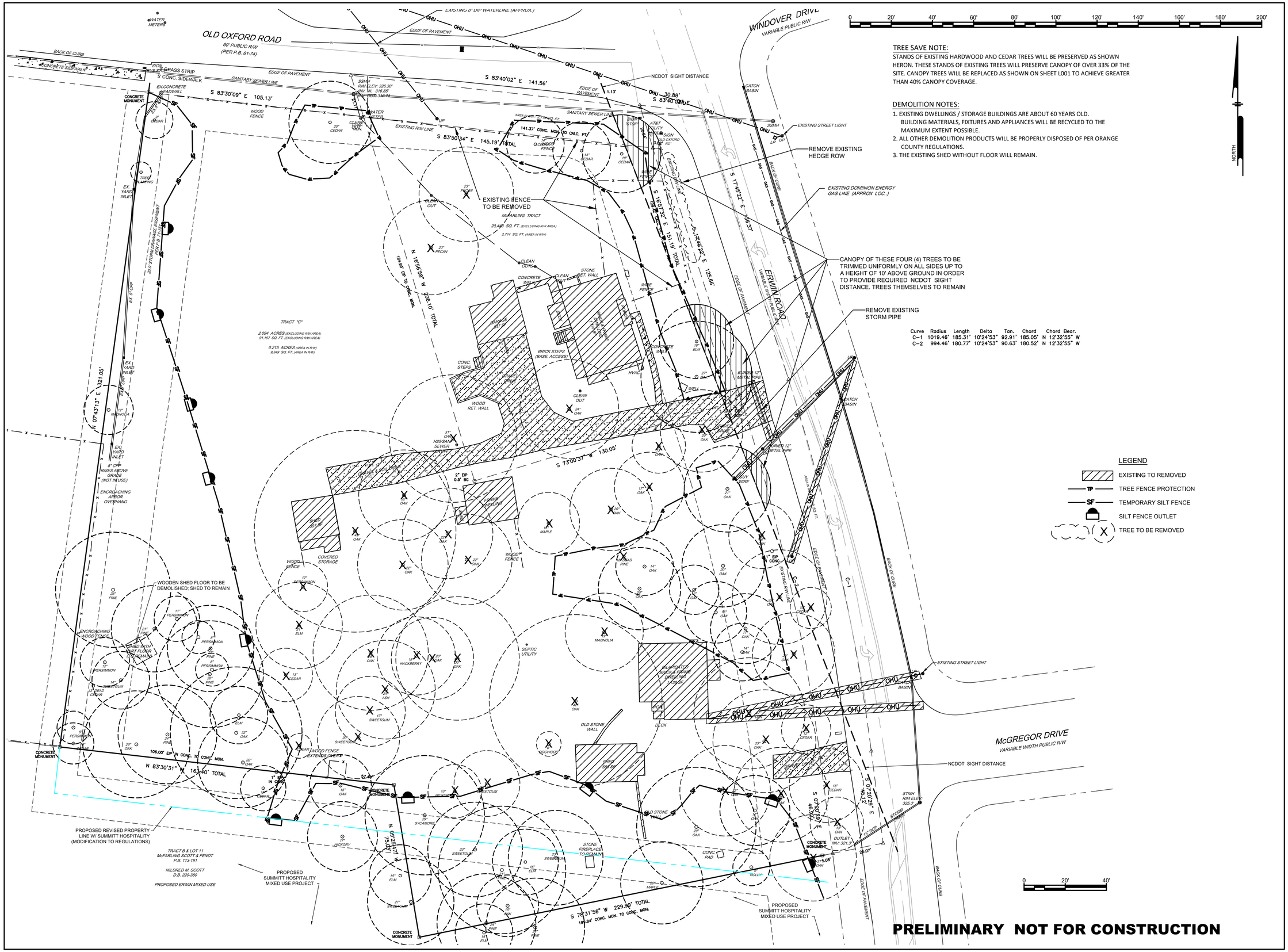
PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	1" = 20'
DRAWN BY	DC
APPROVED BY	PP

C002

SHEET 3 OF 16

C:\ACAD Folders\Projects\CCC\C002.dwg PLOTTED: 2/26/2020 4:56 PM, BY: Donald Chilly PLOTSTYLE: pipe.ctb PROJECT STATUS: —



Curve	Radius	Length	Delta	Tan.	Chord	Chord Bear.
C-1	1019.46'	185.31'	10°24'53"	92.91'	185.05' N	12°32'55" W
C-2	994.46'	180.77'	10°24'53"	90.63'	180.52' N	12°32'55" W

PHILIP POST ENGINEERING
FIRM: C-347
Phillip N. Post, PE, PLS
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phillip.n.post@gmail.com
PO Box 4912
Chapel Hill, NC 27515

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CHRIST COMMUNITY CHURCH

141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-39-9116 AND 9799-49-0235

DEMOLITION & LANDSCAPE PROTECTION PLAN

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

#	DATE	REVISIONS	BY
6	2/26/2020	NCDOT AND TOWN COMMENTS	DC
5	2-9-2020	TOWN COMMENTS	#DC
4	1-27-2020	PROPERTY LINE SWAP	DC
3	1-17-2020	SUBMITTAL #2 COMMENTS	DC
2	12-27-2019	OWASA 11/13/2019 COMMENTS	DC
1	11-17-2019	SUBMITTAL #1 COMMENTS	DC

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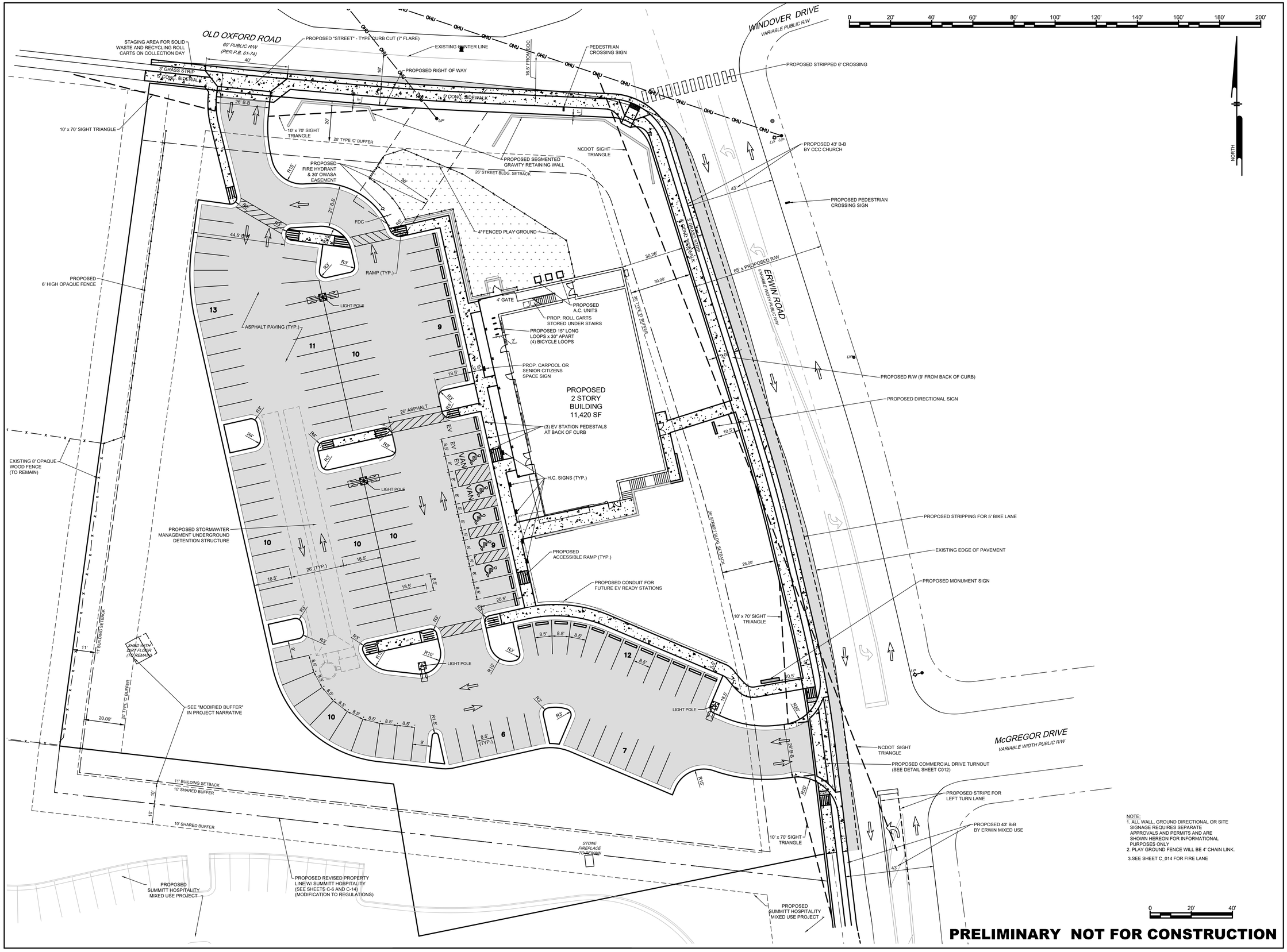
PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	1" = 20'
DRAWN BY	DC
APPROVED BY	PNP

C003

SHEET 4 OF 16

C:\ACAD Folders\Projects\CCC\C003.dwg PLOTTED: 2/26/2020 4:56 PM, BY: Donald Chilly PLOTSTYLE: ppt.ctb PROJECT STATUS: ---



NOTE:
1. ALL WALL, GROUND DIRECTIONAL OR SITE SIGNAGE REQUIRES SEPARATE APPROVALS AND PERMITS AND ARE SHOWN HEREON FOR INFORMATIONAL PURPOSES ONLY
2. PLAY GROUND FENCE WILL BE 4' CHAIN LINK.
3.SEE SHEET C_014 FOR FIRE LANE

PRELIMINARY NOT FOR CONSTRUCTION

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PHILIP POST ENGINEERING
FIRM: C-347

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CHRIST COMMUNITY CHURCH

141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-39-9116 AND 9799-49-0235

SITE PLAN

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

#	DATE	REVISIONS	BY
6	2/26/2020	NCDOT AND TOWN COMMENTS	DC
5	2-9-2020	TOWN COMMENTS	#DC
4	1-27-2020	PROPERTY LINE SWAP	DC
3	1-17-2020	SUBMITTAL #2 COMMENTS	DC
2	12-27-2019	OWASA, 11/13/2019 COMMENTS	DC
1	11-17-2019	SUBMITTAL #1 COMMENTS	DC

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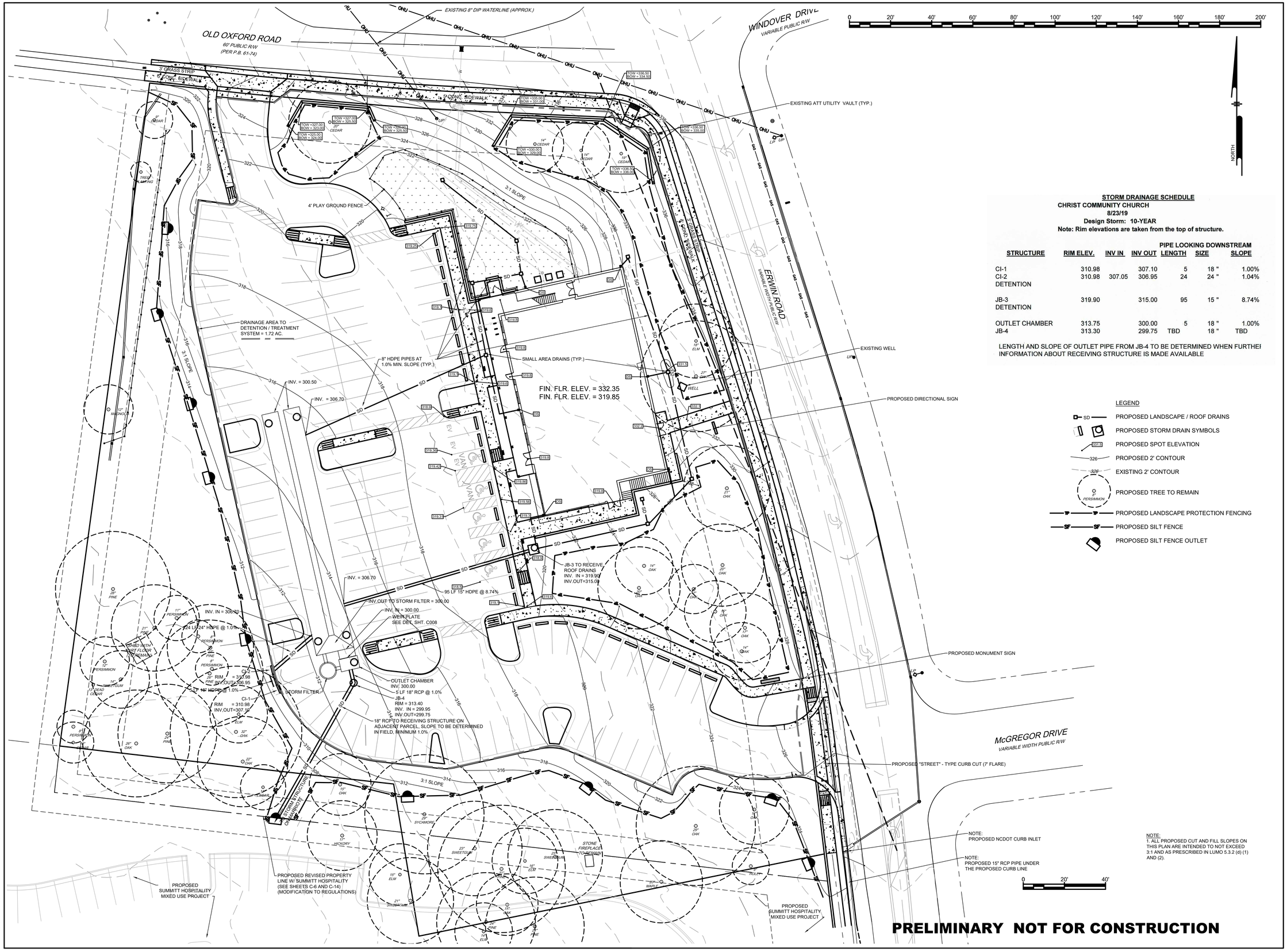
PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	1" = 20'
DRAWN BY	DC
APPROVED BY	PNP

C004

SHEET 5 OF 16

C:\ACAD Folders\Projects\CCC\C004.dwg PLOTTED: 2/26/2020 1:56 PM, BY: Donald Chilly PLOTSTYLE: pipe.ctb PROJECT STATUS: ---



STORM DRAINAGE SCHEDULE
CHRIST COMMUNITY CHURCH
8/23/19
Design Storm: 10-YEAR
Note: Rim elevations are taken from the top of structure.

STRUCTURE	RIM ELEV.	INV IN	INV OUT	PIPE LOOKING DOWNSTREAM LENGTH	SIZE	SLOPE
CI-1	310.98		307.10	5	18 "	1.00%
CI-2	310.98	307.05	306.95	24	24 "	1.04%
DETENTION						
JB-3	319.90		315.00	95	15 "	8.74%
DETENTION						
OUTLET CHAMBER	313.75		300.00	5	18 "	1.00%
JB-4	313.30		299.75	TBD	18 "	TBD

LENGTH AND SLOPE OF OUTLET PIPE FROM JB-4 TO BE DETERMINED WHEN FURTHEI INFORMATION ABOUT RECEIVING STRUCTURE IS MADE AVAILABLE

LEGEND

- SD — PROPOSED LANDSCAPE / ROOF DRAINS
- PROPOSED STORM DRAIN SYMBOLS
- 331.5 — PROPOSED SPOT ELEVATION
- 326 — PROPOSED 2' CONTOUR
- 326 — EXISTING 2' CONTOUR
- 8" PERSIMMON — PROPOSED TREE TO REMAIN
- PROPOSED LANDSCAPE PROTECTION FENCING
- SF — PROPOSED SILT FENCE
- PROPOSED SILT FENCE OUTLET

NOTE:
1. ALL PROPOSED CUT AND FILL SLOPES ON THIS PLAN ARE INTENDED TO NOT EXCEED 3:1 AND AS PRESCRIBED IN LUMO 5.3.2 (d) (1) AND (2).

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CHRIST COMMUNITY CHURCH

141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-39-9116 AND 9799-49-0235

GRADING & DRAINAGE PLAN

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

#	DATE	REVISIONS	BY
6	2/26/2020	NCDOT AND TOWN COMMENTS	DC
5	2-9-2020	TOWN COMMENTS	#DC
4	1-27-2020	PROPERTY LINE SWAP	DC
3	1-17-2020	SUBMITTAL #2 COMMENTS	DC
2	12-27-2019	OWASA 11/13/2019 COMMENTS	DC
1	11-17-2019	SUBMITTAL #1 COMMENTS	DC

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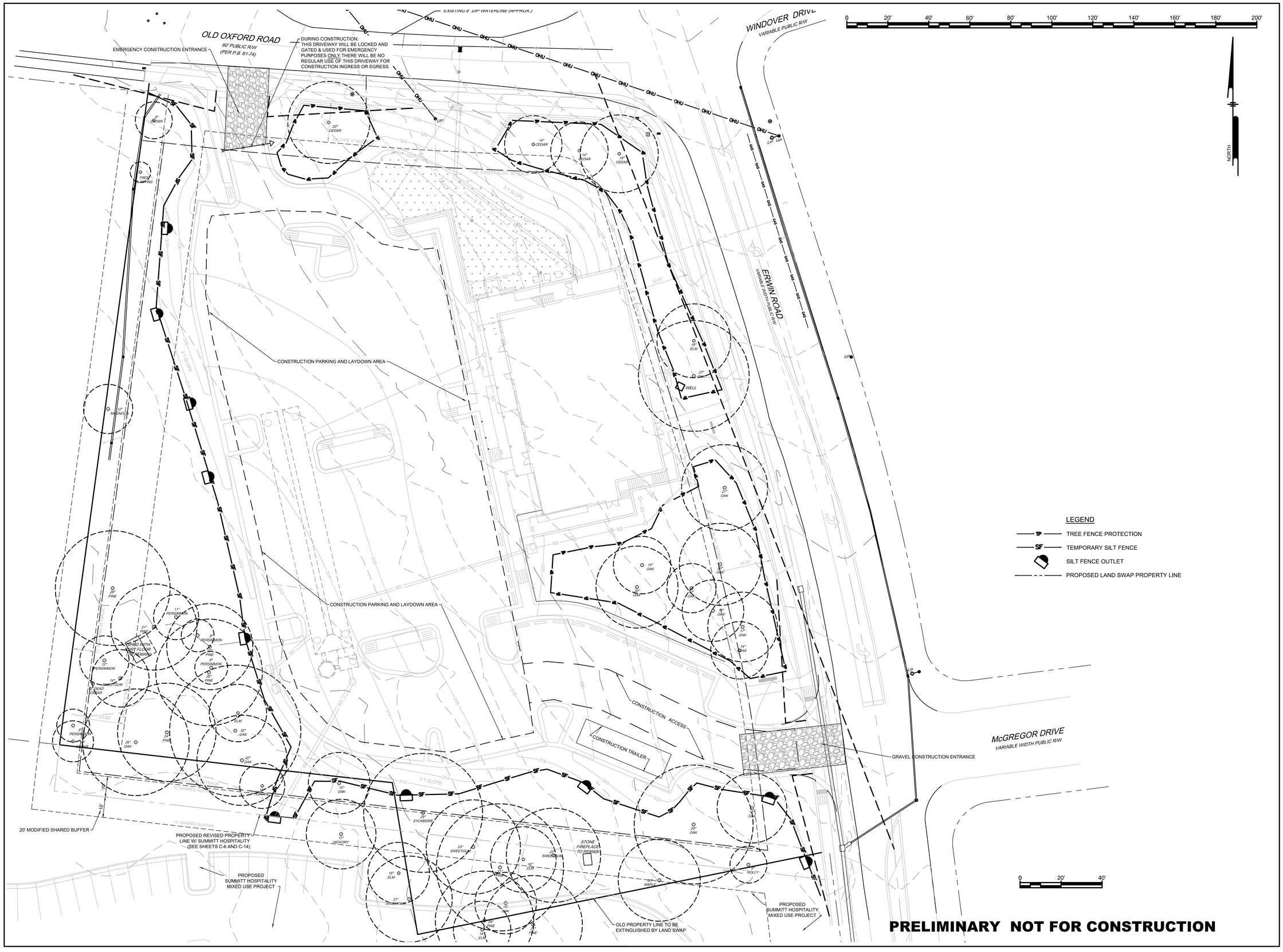
PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	1" = 20'
DRAWN BY	DC
APPROVED BY	PNP

C005

SHEET 6 OF 16

C:\ACAD Folders\Projects\CCC\C005.dwg PLOTTED: 2/26/2020-4:57 PM, BY: Donald Chilly PLOTSTYLE: pnp.ctb PROJECT STATUS: ---



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PHILIP POST ENGINEERING
FIRM: C-347

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CHRIST COMMUNITY CHURCH

141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PINN# 9799-39-9116 AND 9799-49-0235

CONSTRUCTION MANAGEMENT PLAN
BOUNDARY SWAP AND BUFFERS

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

#	DATE	REVISIONS	BY
6	2/26/2020	NCDOT AND TOWN COMMENTS	DC
5	2-9-2020	TOWN COMMENTS	#DC
4	1-27-2020	PROPERTY LINE SWAP	DC
3	1-17-2020	SUBMITTAL #2 COMMENTS	DC
2	12-27-2019	OWASA 11/13/2019 COMMENTS	DC
1	11-17-2019	SUBMITTAL #1 COMMENTS	DC

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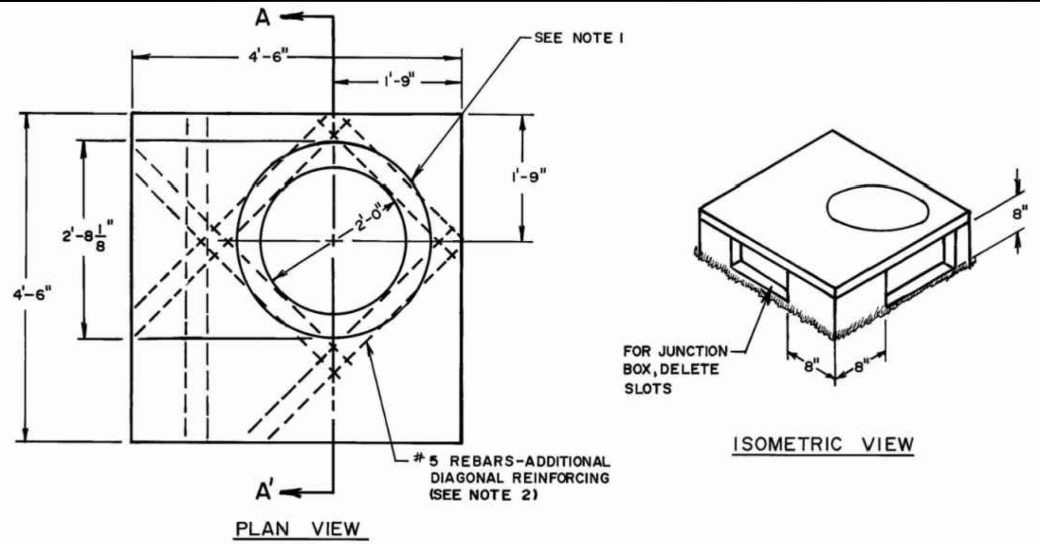
PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	1" = 20'
DRAWN BY	DC
APPROVED BY	PNP

C006

SHEET 7 OF 16

C:\ACAD Folders\Projects\CCC-STORMWATER & CONSTRUCTION MANAGEMENT & LAND SWAP PLAN.dwg PLOTTED: 2/26/2020 4:57 PM, BY: Donald Choby PLOTSTYLE: ppu.ctb PROJECT STATUS: ---

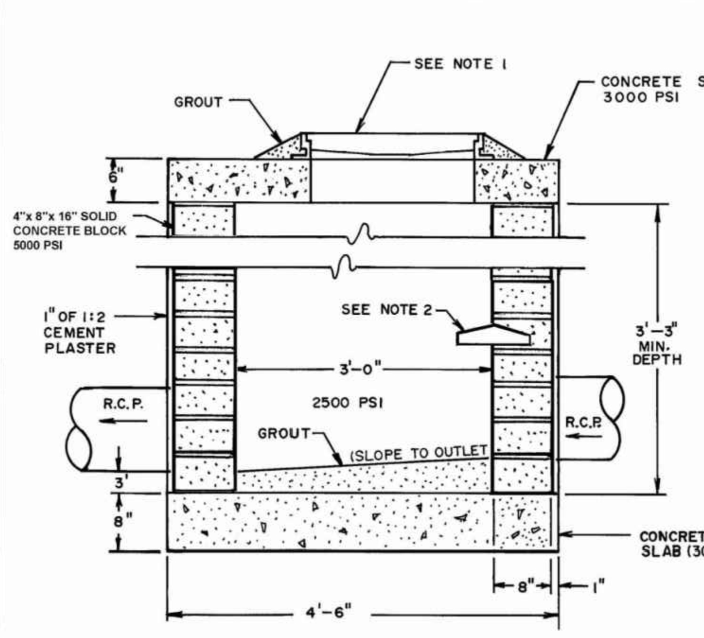


NOTES:
1. SHOWN WITH EAST JORDAN IRON WORKS FLUSH MOUNT MANHOLE FOR USE WITH ALL YARD INLETS & AS AN ALTERNATE FOR JUNCTION BOXES IN SIDEWALKS OR YARD AREAS ONLY. FOR ALL OTHER JUNCTION BOXES USE MANHOLES SPECIFIED IN STD. DET. SD-4C, GROUT AS SHOWN.
2. COVER TO BE 4000 PSI CONCRETE WITH #5 REBAR @ 6" O.C. EACH WAY.
3. SEE STANDARD DETAIL SD-2A FOR SECTION A-A'.

NO SCALE

TITLE: YARD INLET/ JUNCTION BOX — REVISIONS (NO, DATE, BY) — DET.NO. SD-2 — SH 1 of 2

ENGINEERING DEPARTMENT STANDARD DETAILS

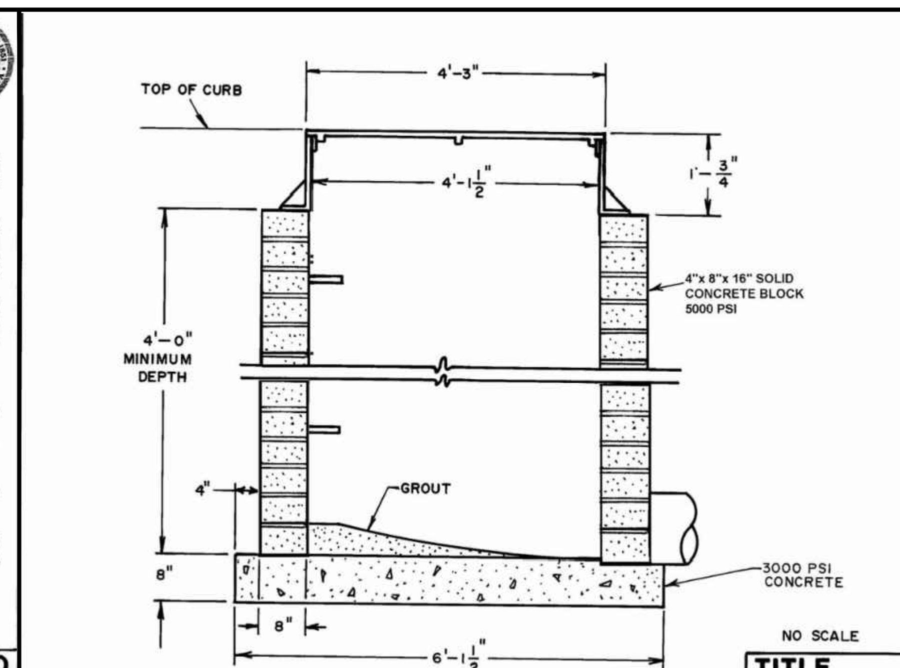


NOTES:
1. USE EAST JORDAN IRON WORKS MANHOLE RING & SOLID COVER IN SIDEWALKS & YARD AREAS. USE MANHOLE RING & SOLID COVER IN STREETS.
2. MANHOLE STEPS @ 15" O.C., 1st STEP IS 2' FROM TOP.

NO SCALE

TITLE: JUNCTION BOX DETAIL — REVISIONS (NO, DATE, BY) — DET.NO. SD-3

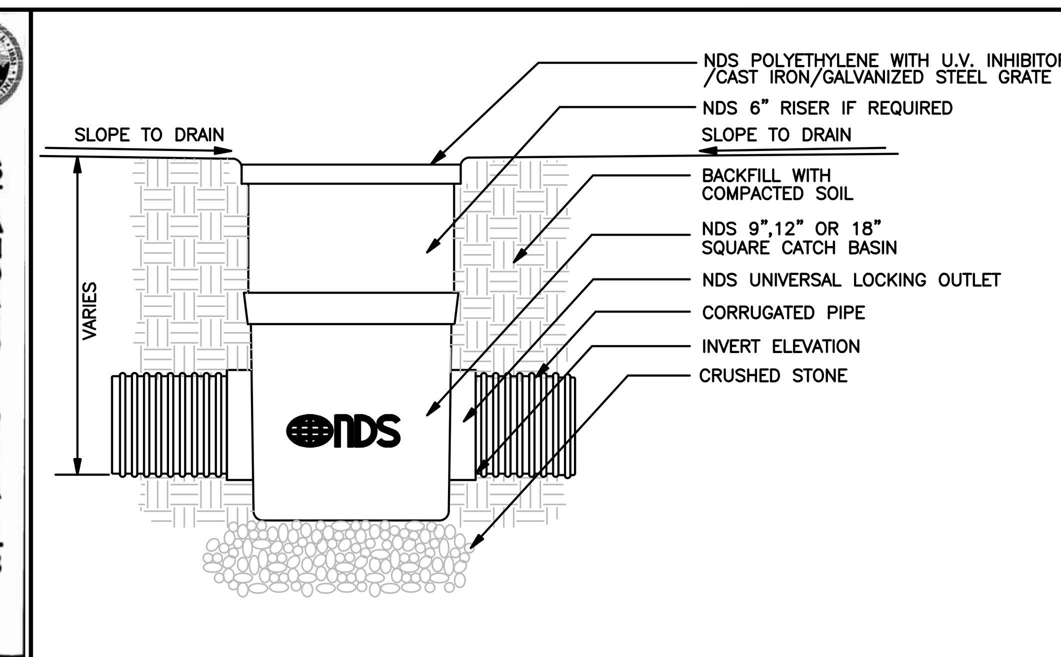
ENGINEERING DEPARTMENT STANDARD DETAILS



NO SCALE

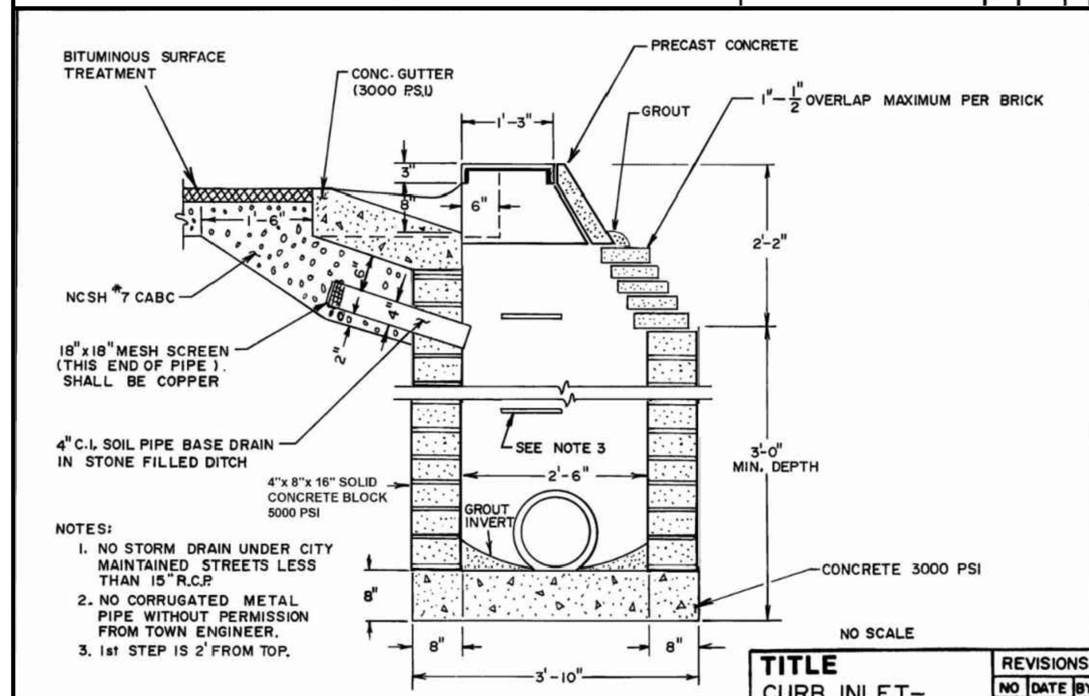
TITLE: CURB INLET – FRONT VIEW — REVISIONS (NO, DATE, BY) — DET.NO. SD-5B

ENGINEERING DEPARTMENT STANDARD DETAILS



NDS SQUARE GRATE WITH NDS SQUARE AREA DRAIN

NOT TO SCALE (LANDSCAPE APPLICATION)

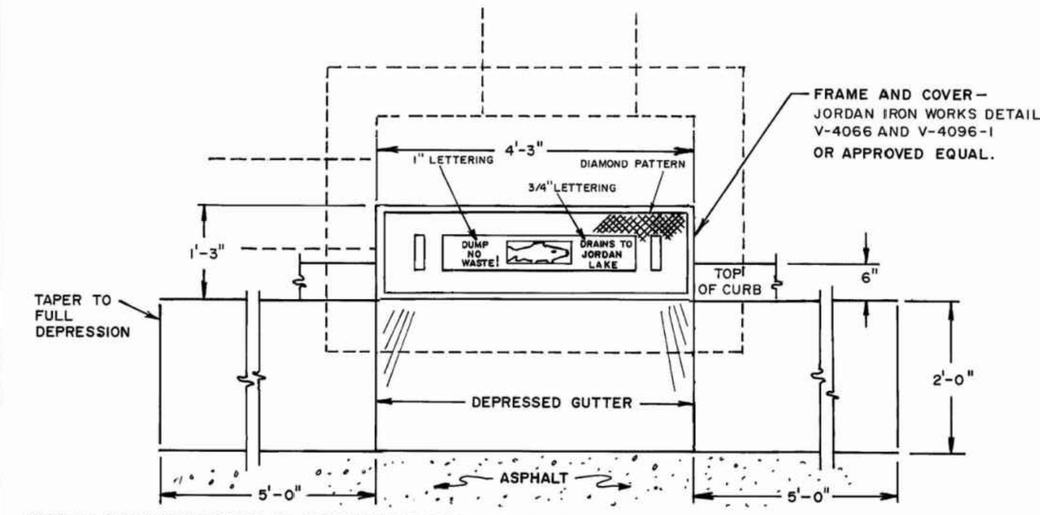


NOTES:
1. NO STORM DRAIN UNDER CITY MAINTAINED STREETS LESS THAN 15" R.C.P.
2. NO CORRUGATED METAL PIPE WITHOUT PERMISSION FROM TOWN ENGINEER.
3. 1st STEP IS 2' FROM TOP.

NO SCALE

TITLE: CURB INLET– SIDE VIEW — REVISIONS (NO, DATE, BY) — DET.NO. SD-5

ENGINEERING DEPARTMENT STANDARD DETAILS

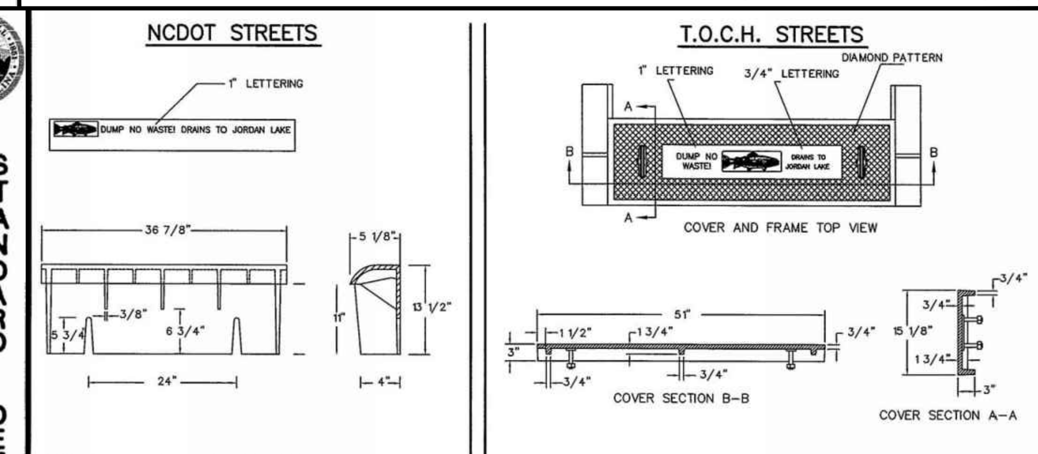


NOTES: ALL STORMDRAIN INLET HOODS AND COVERS INSTALLED OR REPLACED WITHIN THE CHAPEL HILL PLANNING JURISDICTION AFTER JULY 31, 2000 SHALL BE PRE-CAST WITH THE MESSAGE: "DUMP NO WASTE! DRAINS TO JORDAN LAKE" (INCLUDING THE CAST IMAGE OF A FISH).
PRE-CAST HOODS AND COVERS SHALL BE DESIGNED IN ACCORDANCE WITH EAST JORDAN IRON WORKS DETAILS V-4066 AND V-4096-1, OR EQUAL, AND MUST COMPLY WITH APPLICABLE STATE AND TOWN REQUIREMENTS FOR MATERIALS AND INSTALLATION.
THIS DETAIL SUPERCEDES STORM DRAIN (SD-5C) DETAIL AS OF JULY 31, 2000.

NO SCALE

TITLE: CURB INLET– TOP VIEW — REVISIONS (NO, DATE, BY) — DET.NO. SD-5A

ENGINEERING DEPARTMENT STANDARD DETAILS



STORMDRAIN CURB INLET HOOD FOR INSTALLATION ON STATE STREETS AND INSTALLATIONS UNDER THE JURISDICTION OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND SHALL COMPLY WITH ASTM A48 CL35. IT SHALL BE A HEAVY DUTY TRAFFIC BEARING GRATE WITH AN APPROXIMATE TOTAL WEIGHT OF 575 LBS. (INCLUDES WEIGHT OF GRATE, FRAME & HOOD).

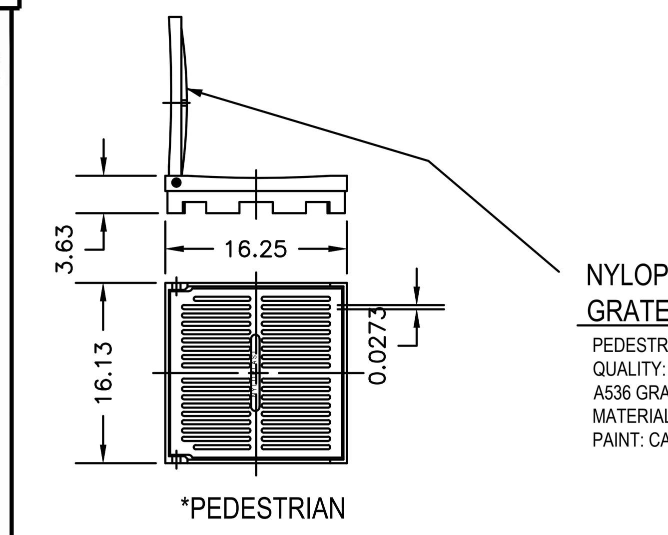
STORMDRAIN CURB INLET COVER FOR INSTALLATION ON TOWN STREETS AND INSTALLATIONS UNDER THE JURISDICTION OF THE TOWN OF CHAPEL HILL SHALL COMPLY WITH ASTM A48 CL35. IT SHALL BE A LIGHT DUTY COVER HAVING AN APPROXIMATE TOTAL WEIGHT OF 307 LBS. (INCLUDES WEIGHT OF COVER AND TWO LEGS).

NOTES:
1. ALL STORMDRAIN INLET HOODS AND COVERS INSTALLED OR REPLACED WITHIN THE CHAPEL HILL PLANNING JURISDICTION AFTER JULY 31, 2000 SHALL BE PRE-CAST WITH THE MESSAGE: "DUMP NO WASTE! DRAINS TO JORDAN LAKE" (INCLUDING THE CAST IMAGE OF A FISH).
2. PRE-CAST HOODS AND COVERS SHALL BE DESIGNED IN ACCORDANCE WITH THE ABOVE MATERIAL SPECIFICATIONS AND MUST COMPLY WITH APPLICABLE STATE AND TOWN REQUIREMENTS FOR MATERIALS AND INSTALLATION.
3. CASTING MUST BE MANUFACTURED IN THE UNITED STATES. MANUFACTURER MUST BE APPROVED BY THE TOWN OF CHAPEL HILL.

N.T.S.

TITLE: CURB INLET HOOD AND COVER — REVISIONS 6/01 JH, 1/03 JH — DET.NO. SD–5C

ENGINEERING DEPARTMENT STANDARD DETAILS



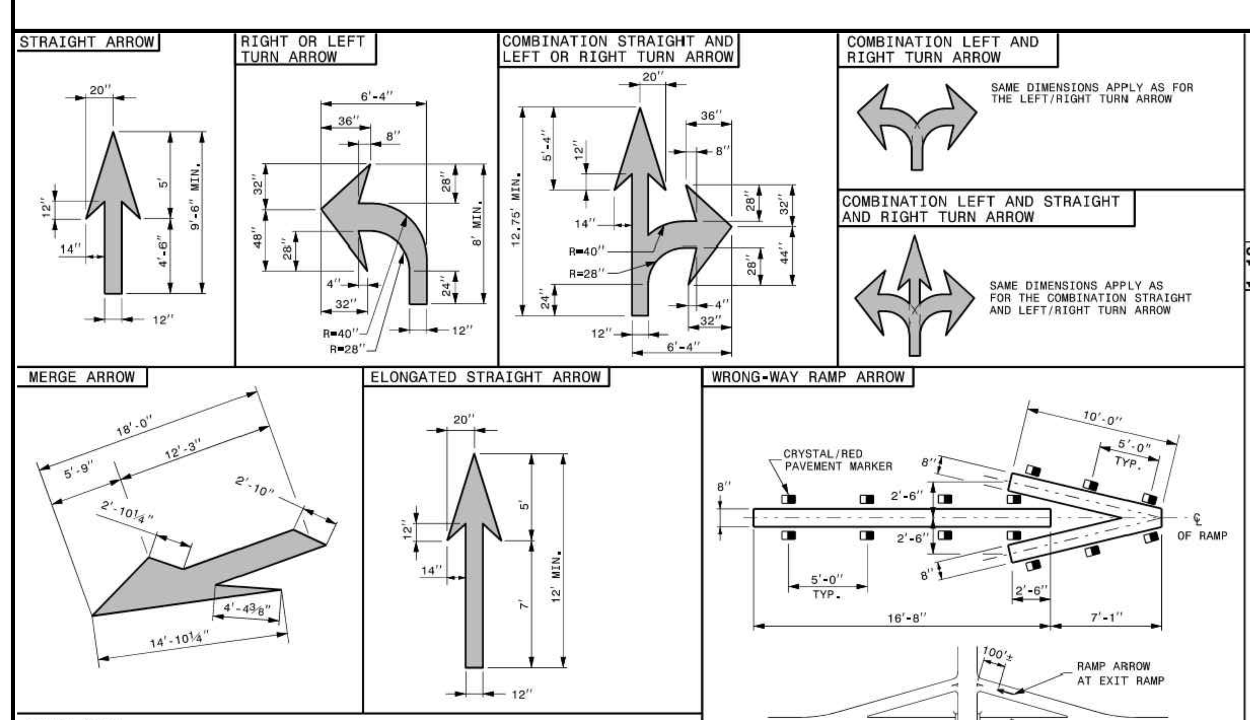
NYLOPLAST 15" GRATES/COVERS

PEDESTRIAN GRATE HAS H-10 MEDIUM DUTY RATING
QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05 & A48-CLASS 30B
MATERIAL: DUCTILE IRON GRATE W/CAST IRON FRAME
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT

APPROX. DRAIN AREA = 81.25 SQ. IN.
APPROX. WEIGHT WITH FRAME = 53.70 LBS.

NDS SQUARE GRATE WITH NDS SQUARE AREA DRAIN

NOT TO SCALE (LANDSCAPE APPLICATION)



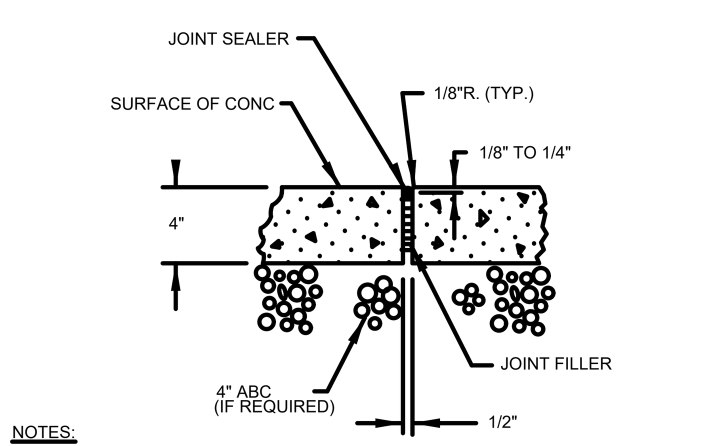
GENERAL NOTES:
1- USE THE COLOR WHITE FOR ALL PAVEMENT MARKING SYMBOLS.
2- DO NOT LOCATE PAVEMENT MARKING SYMBOLS AS TO ENCROACH INTO INTERSECTION AREAS.
3- DO NOT PLACE SYMBOLS ACROSS TRANSVERSE EXPANSION JOINTS ON PORTLAND CEMENT CONCRETE PAVEMENTS, UNLESS APPROVED BY THE ENGINEER.
4- CONFORM ALL SYMBOLS TO THE FHWA "STANDARD HIGHWAY SIGNS" MANUAL WHICH INCLUDES PAVEMENT MARKINGS AND STANDARD ALPHABETS (REFER TO SHEETS 6 THRU 9). DIMENSIONS CAN VARY AMONG MANUFACTURERS, THEREFORE SLIGHT VARIANCES ARE ACCEPTABLE. HOWEVER, ALL SYMBOLS ARE REQUIRED TO BE APPROVED BY THE DEPARTMENT.

NOTE:
1- WHEN INSTALLING COLD APPLIED PLASTIC ON CONCRETE, IT IS RECOMMENDED TO USE COLD APPLIED PLASTIC WITH A BLACK CONTRASTING BOLDER.

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **PAVEMENT MARKINGS** SYMBOLS AND WORD MESSAGES

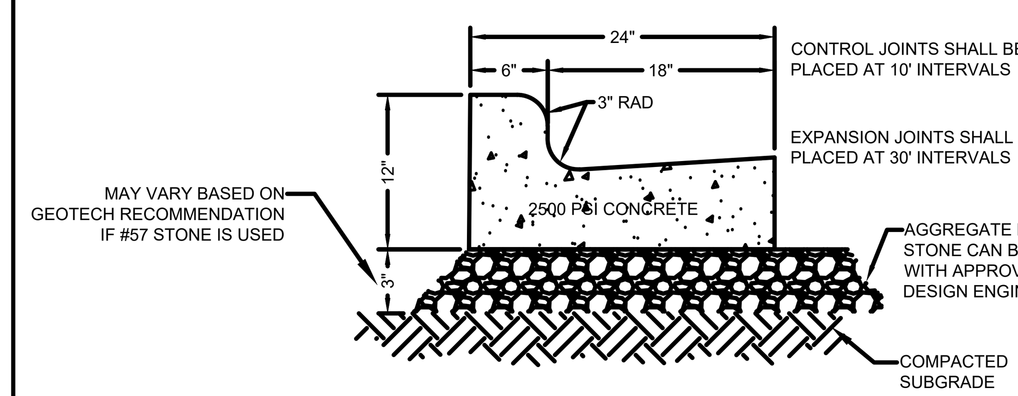
SHEET 1 OF 9 — 1205.08



NOTES:
- A GROOVE JOINT 1" DEEP W/ 1/8" RADIUS SHALL BE REQUIRED IN THE CONC. SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 50' INTERVALS. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.
- FINISHED SURFACE OF SIDEWALK TO BE BROOM FINISHED, PERPENDICULAR TO TRAFFIC FLOW.

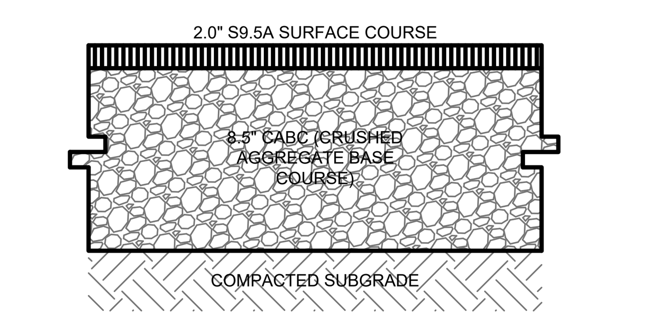
SIDEWALK DETAIL

NTS



24" STANDARD CURB & GUTTER (ON SITE)

NTS

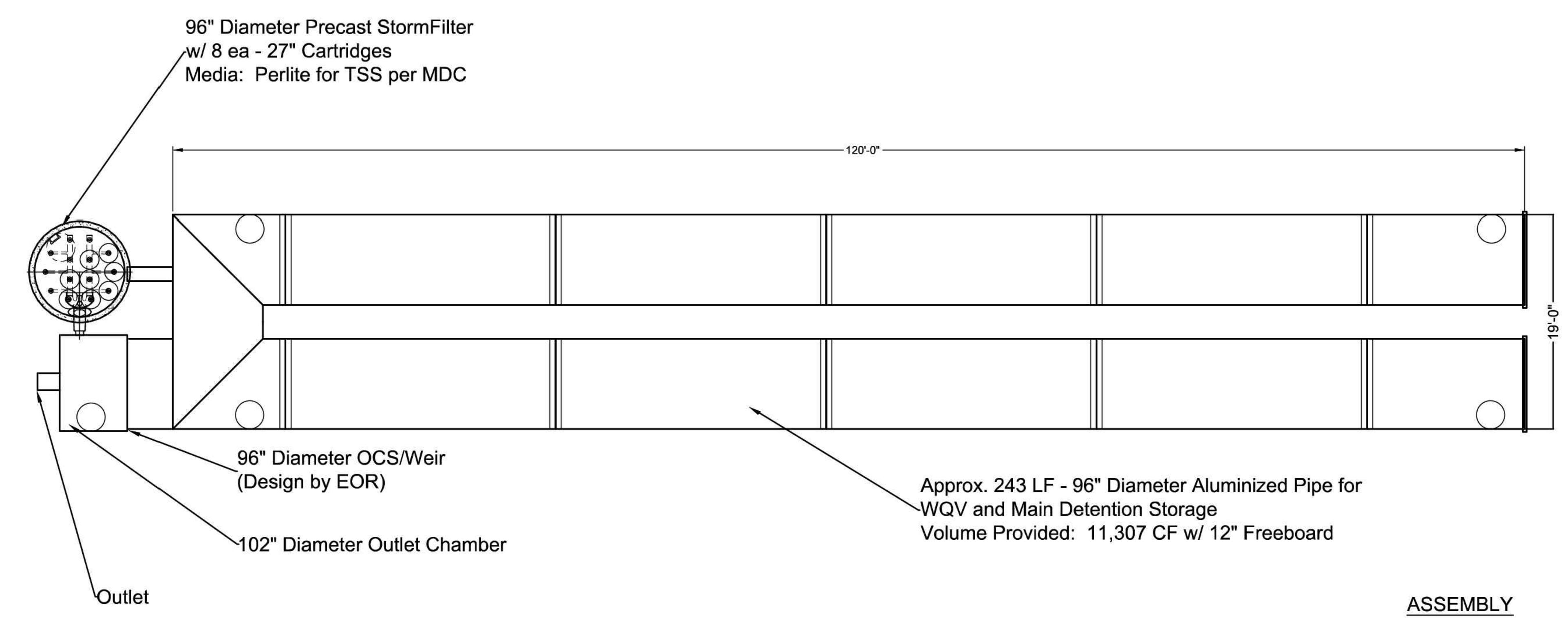


LIGHT DUTY PAVEMENT

NOTE: PAVEMENT SECTIONS SHALL MATCH ANY RECOMMENDATIONS BY GEOTECH ENGINEERS IF PROVIDED.

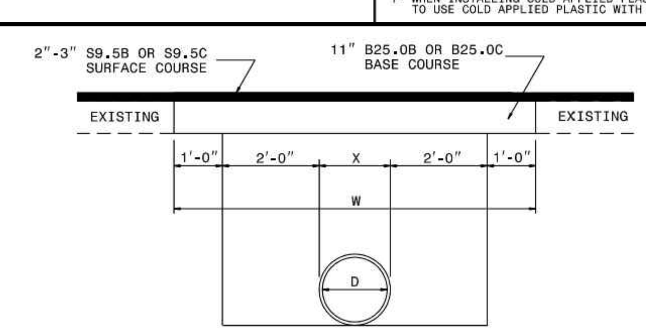
ASPHALT PAVING

NTS



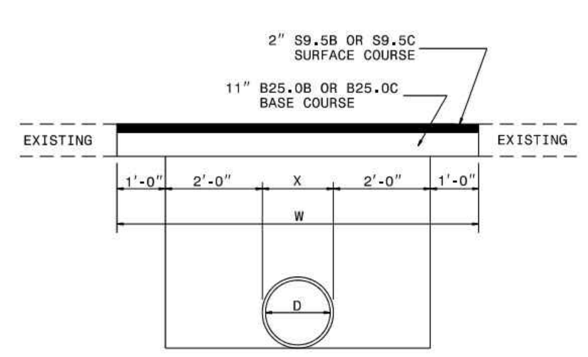
ASSEMBLY

SCALE: 1" = 10'



PAVEMENT REPAIRS ON ROADS TO BE RESURFACED
(PIPE IS PLACED UNDER EXISTING PAVEMENT)

D	X	W
12"	1'-4"	7'-4"
15"	1'-7"	7'-7"
18"	1'-10"	7'-10"
24"	2'-6"	8'-6"
30"	3'-1"	9'-1"
36"	3'-8"	9'-8"
42"	4'-5"	10'-5"
48"	5'-0"	11'-0"

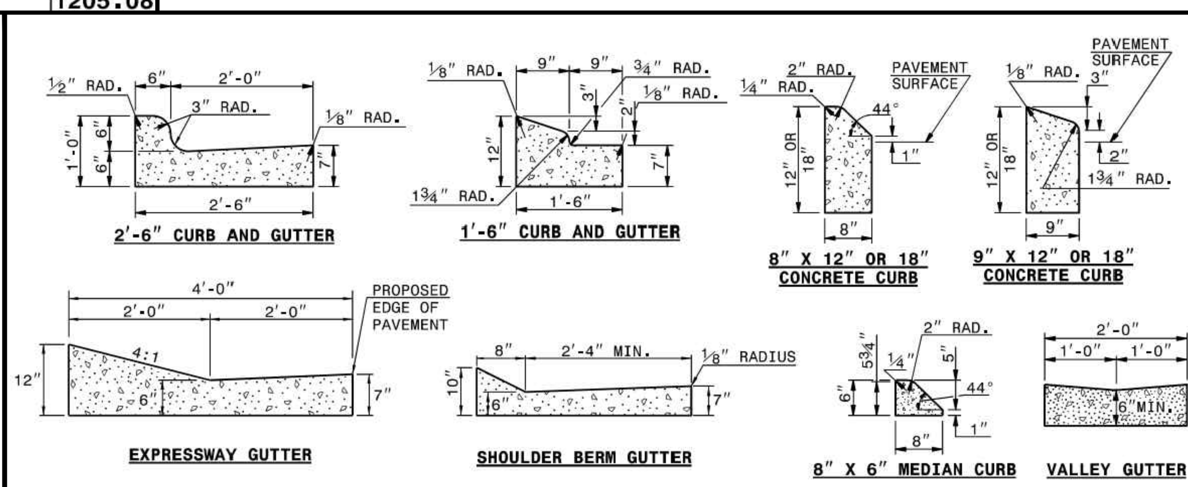


PAVEMENT REPAIRS ON ROADS NOT TO BE RESURFACED
(PIPE IS TO BE PLACED UNDER EXISTING PAVEMENT)

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

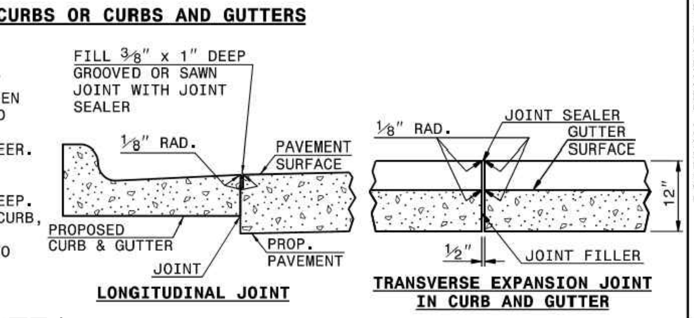
ROADWAY STANDARD DRAWING FOR **PAVEMENT REPAIRS** FOR SUPERPAVE MIX TYPES

SHEET 1 OF 1 — 654.01



SECTION VIEW OF CURBS OR CURBS AND GUTTERS

GENERAL NOTES:
- PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
- JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
- CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
- FILL ALL CONSTRUCTION JOINTS, EXCEPT IN 8"x6" MEDIAN CURB, WITH JOINT FILLER AND SEALER.
- SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



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SECTION VIEW OF JOINTS

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **CONCRETE CURB, GUTTER AND CURB & GUTTER**

SHEET 1 OF 3 — 846.01

PROJECT SUMMARY

CALCULATION DETAILS
- LENGTH PER BARREL = 112 FT
- LENGTH PER HEADER = 19 FT
- LOADING = H20 & H25
- APPROX. CMP FOOTAGE = 243 FT

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED 11,300 CF
- PIPE STORAGE = 11,307 CF W/ 12" FREEBOARD
- STRUCTURAL BACKFILL STORAGE = 0 CF
- TOTAL STORAGE PROVIDED = 11,307 CF

PIPE DETAILS
- DIAMETER = 96 IN
- CORRUGATION = 5" X 1" OR 3" X 1"
- GAGE = 14
- COATING = ALUMINIZED STEEL TYPE 2 (ALT2)
- WALL TYPE = SOLID
- BARREL SPACING = 36 IN

BACKFILL DETAILS
- WIDTH AT ENDS = 24 IN
- ABOVE PIPE = 0 IN
- WIDTH AT SIDES = 24 IN
- BELOW PIPE = 0 IN

NOTE:
THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

NOTES
- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.

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CONTECH CMP DETENTION SYSTEMS — CONTECH DYODS DRAWING

DYODS - 12323-1-0
PROJECT NAME: Christ Community Church
Chapel Hill, NC
DESCRIPTION: WQV + MAIN DETENTION

PROJECT No.: 12323-1	SEQ. No.: 0	DATE: 8/23/2019
DESIGNED: DYODS		DRAWN: DYODS
CHECKED:		APPROVED:
SHEET NO.: D1		

Philip N. Post, PE, PLS
(919) 818-7862
philip.n.post@gmail.com
PO Box 4912
Chapel Hill, NC 27515
PHILIP POST ENGINEERING
FIRM: C-347

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CHRIST COMMUNITY CHURCH

141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-39-9116 AND 9799-49-0235

SITE DETAILS

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

DATE	NO.	REVISIONS	BY
#	#	#	#
2/26/2020	6	NCDOT AND TOWN COMMENTS	DC
2-9-2020	5	TOWN COMMENTS	#DC
1-27-2020	4	PROPERTY LINE SWAP	DC
1-17-2020	3	SUBMITTAL #2 COMMENTS	DC
12-27-2019	2	OWASA 11/13/2019 COMMENTS	DC
11-17-2019	1	SUBMITTAL #1 COMMENTS	DC

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PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	-
DRAWN BY	DC
APPROVED BY	PP

C007

SHEET 8 OF 16

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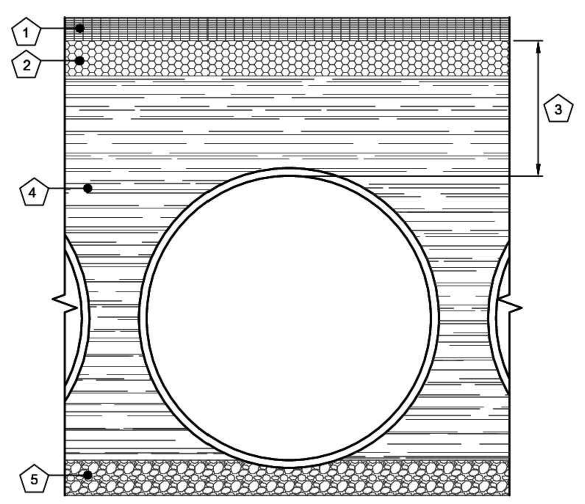

KEY

1. RIGID OR FLEXIBLE PAVEMENT
2. GRANULAR ROAD BASE
3. 12" MIN. FOR DIAMETERS THROUGH 96" 18" MIN. FOR DIAMETERS FROM 102" AND LARGER MEASURED TO TOP OF RIGID OR BOTTOM OF FLEXIBLE PAVEMENT.
4. SELECT GRANULAR FILL PER AASHTO M145 A1, A2 OR A3, OR APPROVED EQUAL. PLACED IN 8" LIFTS (COMPACTED TO MIN. 90% STANDARD DENSITY PER AASHTO T99.)
5. GRANULAR BEDDING, ROUGHLY SHAPED TO FIT THE BOTTOM OF PIPE, 4" TO 6" IN DEPTH

FOUNDATION/BEDDING PREPARATION

PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER. ONCE THE FOUNDATION PREPARATION IS COMPLETE, 4" - 6" OF A WELL-GRADED GRANULAR MATERIAL SHALL BE PLACED AS THE BEDDING.

BACKFILL

THE BACKFILL SHALL BE AN A1, A2 OR A3 GRANULAR FILL PER AASHTO M145, OR A WELL-GRADED GRANULAR FILL AS APPROVED BY THE SITE ENGINEER (SEE INSTALLATION GUIDELINES). THE MATERIAL SHALL BE PLACED IN 8" LOOSE LIFTS AND COMPACTED TO 90% AASHTO T99 STANDARD PROCTOR DENSITY. WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE DETENTION SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON THE PIPE.

OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.

BACKFILL DETAIL
SCALE: N.T.S.

NOTE:
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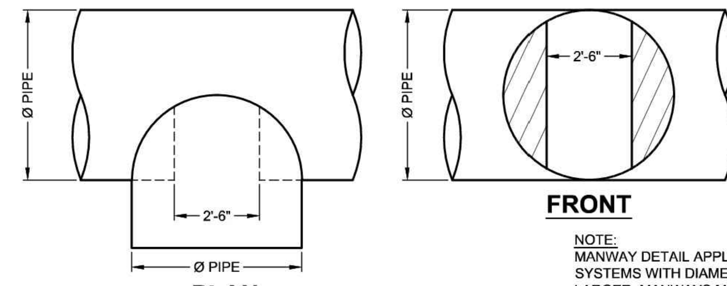
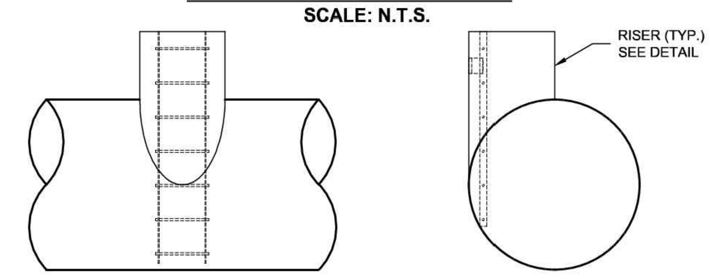


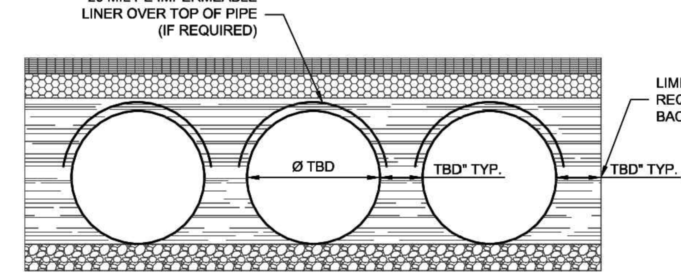
TYPICAL MANWAY DETAIL
SCALE: N.T.S.

NOTE:
MANWAY DETAIL APPLICABLE FOR CMP SYSTEMS WITH DIAMETERS 48" AND LARGER. MANWAYS MAY BE REQUIRED ON SMALLER SYSTEMS DEPENDING ON ACTUAL SITE SPECIFIC CONDITIONS.



TYPICAL RISER DETAIL
SCALE: N.T.S.

NOTE:
LADDERS ARE OPTIONAL AND ARE NOT REQUIRED FOR ALL SYSTEMS.



TYPICAL SECTION VIEW
LINER OVER ROWS
SCALE: N.T.S.

NOTE: IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, A GEOMEMBRANE BARRIER IS RECOMMENDED WITH THE SYSTEM. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

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800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH CMP DETENTION SYSTEMS
CONTECH DYODS DRAWING

DYODS - 12323-1-0
PROJECT NAME: Christ Community Church
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PROJECT No.:	SEQ. No.:	DATE:
12323-1	0	8/23/2019
DESIGNED: DYODS		DRAWN: DYODS
CHECKED:		APPROVED:
SHEET NO.: D2		

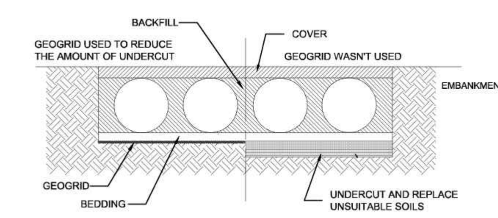
CMP DETENTION INSTALLATION GUIDE

PROPER INSTALLATION OF A FLEXIBLE UNDERGROUND DETENTION SYSTEM WILL ENSURE LONG-TERM PERFORMANCE. THE CONFIGURATION OF THESE SYSTEMS OFTEN REQUIRES SPECIAL CONSTRUCTION PRACTICES THAT DIFFER FROM CONVENTIONAL FLEXIBLE PIPE CONSTRUCTION. CONTECH ENGINEERED SOLUTIONS STRONGLY SUGGESTS SCHEDULING A PRE-CONSTRUCTION MEETING WITH YOUR LOCAL SALES ENGINEER TO DETERMINE IF ADDITIONAL MEASURES, NOT COVERED IN THIS GUIDE, ARE APPROPRIATE FOR YOUR SITE.

FOUNDATION

CONSTRUCT A FOUNDATION THAT CAN SUPPORT THE DESIGN LOADING APPLIED BY THE PIPE AND ADJACENT BACKFILL WEIGHT AS WELL AS MAINTAIN ITS INTEGRITY DURING CONSTRUCTION.

IF SOFT OR UNSUITABLE SOILS ARE ENCOUNTERED, REMOVE THE POOR SOILS DOWN TO A SUITABLE DEPTH AND THEN BUILD UP TO THE APPROPRIATE ELEVATION WITH A COMPETENT BACKFILL MATERIAL. THE STRUCTURAL FILL MATERIAL GRADATION SHOULD NOT ALLOW THE MIGRATION OF FINES, WHICH CAN CAUSE SETTLEMENT OF THE DETENTION SYSTEM OR PAVEMENT ABOVE. IF THE STRUCTURAL FILL MATERIAL IS NOT COMPATIBLE WITH THE UNDERLYING SOILS AN ENGINEERING FABRIC SHOULD BE USED AS A SEPARATOR. IN SOME CASES, USING A STIFF REINFORCING GEOGRID REDUCES OVER EXCAVATION AND REPLACEMENT FILL QUANTITIES.



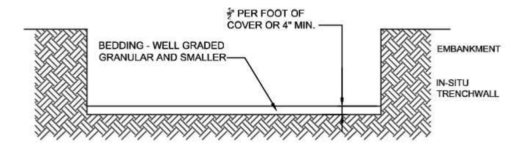
GRADE THE FOUNDATION SUBGRADE TO A UNIFORM OR SLIGHTLY SLOPING GRADE. IF THE SUBGRADE IS CLAY OR RELATIVELY NON-POROUS AND THE CONSTRUCTION SEQUENCE WILL LAST FOR AN EXTENDED PERIOD OF TIME, IT IS BEST TO SLOPE THE GRADE TO ONE END OF THE SYSTEM. THIS WILL ALLOW EXCESS WATER TO DRAIN QUICKLY, PREVENTING SATURATION OF THE SUBGRADE.

BEDDING

A 4 TO 6-INCH THICK, WELL-GRADED, GRANULAR MATERIAL IS THE PREFERRED PIPE BEDDING. IF CONSTRUCTION EQUIPMENT WILL OPERATE FOR AN EXTENDED PERIOD OF TIME ON THE BEDDING, USE EITHER AN ENGINEERING FABRIC OR A STIFF GEOGRID TO ENSURE THE BASE MATERIAL MAINTAINS ITS INTEGRITY.

USING AN OPEN-GRADED BEDDING MATERIAL IS ACCEPTABLE; HOWEVER, AN ENGINEERING FABRIC SEPARATOR IS REQUIRED BETWEEN THE BASE AND THE SUBGRADE.

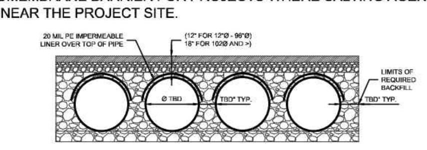
GRADE THE BASE TO A SMOOTH, UNIFORM GRADE TO ALLOW FOR THE PROPER PLACEMENT OF THE PIPE.



GEOMEMBRANE BARRIER

A SITE'S RESISTIVITY MAY CHANGE OVER TIME WHEN VARIOUS TYPES OF SALTING AGENTS ARE USED, SUCH AS ROAD SALTS FOR DEICING AGENTS. IF SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE, A GEOMEMBRANE BARRIER IS RECOMMENDED WITH THE SYSTEM. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM THE USE OF SUCH AGENTS INCLUDING PREMATURE CORROSION AND REDUCED ACTUAL SERVICE LIFE.

THE PROJECT'S ENGINEER OF RECORD IS TO EVALUATE WHETHER SALTING AGENTS WILL BE USED ON OR NEAR THE PROJECT SITE, AND USE HIS/HER BEST JUDGEMENT TO DETERMINE IF ANY ADDITIONAL PROTECTIVE MEASURES ARE REQUIRED. BELOW IS A TYPICAL DETAIL SHOWING THE PLACEMENT OF A GEOMEMBRANE BARRIER FOR PROJECTS WHERE SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE.



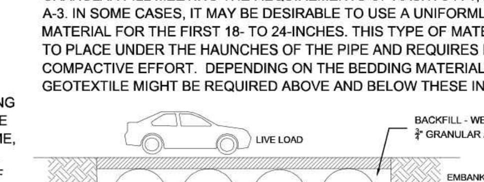
IN-SITU TRENCH WALL

IF EXCAVATION IS REQUIRED, THE TRENCH WALL NEEDS TO BE CAPABLE OF SUPPORTING THE LOAD THAT THE PIPE SHEDS AS THE SYSTEM IS LOADED. IF SOILS ARE NOT CAPABLE OF SUPPORTING THESE LOADS, THE PIPE CAN DEFLECT. PERFORM A SIMPLE SOIL PRESSURE CHECK USING THE APPLIED LOADS TO DETERMINE THE LIMITS OF EXCAVATION BEYOND THE SPRING LINE OF THE OUTER MOST PIPES.

IN MOST CASES THE REQUIREMENTS FOR A SAFE WORK ENVIRONMENT AND PROPER BACKFILL PLACEMENT AND COMPACTION TAKE CARE OF THIS CONCERN.

BACKFILL MATERIAL

TYPICALLY, THE BEST BACKFILL MATERIAL IS AN ANGULAR, WELL-GRADED, GRANULAR FILL MEETING THE REQUIREMENTS OF AASHTO A-1, A-2 OR A-3. IN SOME CASES, IT MAY BE DESIRABLE TO USE A UNIFORMLY GRADED MATERIAL FOR THE FIRST 18- TO 24-INCHES. THIS TYPE OF MATERIAL IS EASIER TO PLACE UNDER THE HAUNCHES OF THE PIPE AND REQUIRES LITTLE COMPACTIVE EFFORT. DEPENDING ON THE BEDDING MATERIAL, A SEPARATION GEOTEXTILE MIGHT BE REQUIRED ABOVE AND BELOW THESE INITIAL LIFTS.

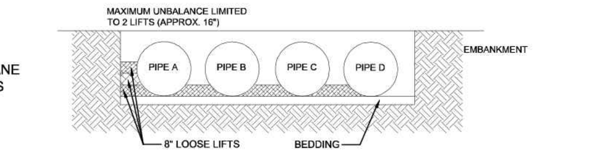


OPEN-GRADED FILL IS TYPICALLY NOT USED BEYOND THE INITIAL 18- TO 24-INCHES BECAUSE THIS TYPE OF FILL OFTEN DOES NOT PROVIDE ADEQUATE CONFINING RESTRAINT TO THE PIPES. IF A UNIFORMLY GRADED MATERIAL (PARTICLES ALL ONE SIZE) IS USED, INSTALL A GEOTEXTILE SEPARATION FABRIC TO PREVENT THE MIGRATION OF FINES INTO THE BACKFILL.

BACKFILL USING CONTROLLED LOW-STRENGTH MATERIAL (CLSM OR "FLOWABLE FILL") WHEN THE SPACING BETWEEN THE PIPES WILL NOT ALLOW FOR PLACEMENT AND ADEQUATE COMPACTION OF THE BACKFILL. WORK CLOSELY WITH THE LOCAL CONTECH SALES ENGINEER REGARDING THE SPECIAL INSTALLATION TECHNIQUES REQUIRED WHEN USING CLSM.

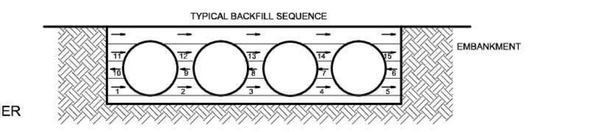
BACKFILL PLACEMENT

PLACE BACKFILL IN 8-INCH LOOSE LIFTS AND COMPACT TO 90% AASHTO T99 STANDARD PROCTOR DENSITY. MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL-SLICING, RODDING, AIR TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS.

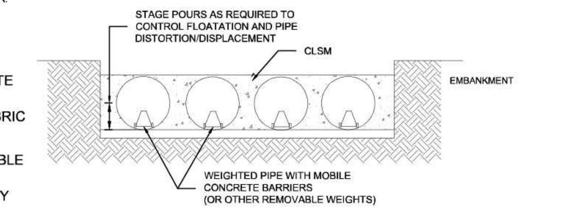


IF AASHTO T99 PROCEDURES ARE DETERMINED INFEASIBLE BY THE GEOTECHNICAL ENGINEER OF RECORD, COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND THE GEOTECHNICAL ENGINEER OF RECORD (OR REPRESENTATIVE THEREOF) IS SATISFIED WITH THE LEVEL OF COMPACTION.

FOR LARGE SYSTEMS, CONVEYOR SYSTEMS, BACKHOES WITH LONG REACHES OR DRAGLINES WITH STONE BUCKETS MAY BE USED TO PLACE BACKFILL. ONCE MINIMUM COVER FOR CONSTRUCTION LOADING ACROSS THE ENTIRE WIDTH OF THE SYSTEM IS REACHED, ADVANCE THE EQUIPMENT TO THE END OF THE RECENTLY PLACED FILL, AND BEGIN THE SEQUENCE AGAIN UNTIL THE SYSTEM IS COMPLETELY BACKFILLED. THIS TYPE OF CONSTRUCTION SEQUENCE PROVIDES ROOM FOR STOCKPILED BACKFILL DIRECTLY BEHIND THE BACKHOE, AS WELL AS THE MOVEMENT OF CONSTRUCTION TRAFFIC. MATERIAL STOCKPILES ON TOP OF THE BACKFILLED DETENTION SYSTEM SHOULD BE LIMITED TO 8- TO 10-FEET HIGH AND MUST PROVIDE BALANCED LOADING ACROSS ALL BARRELS. TO DETERMINE THE PROPER COVER OVER THE PIPES TO ALLOW THE MOVEMENT OF CONSTRUCTION EQUIPMENT SEE TABLE 1, OR CONTACT YOUR LOCAL CONTECH SALES ENGINEER.



WHEN FLOWABLE FILL IS USED, YOU MUST PREVENT PIPE FLOATATION. TYPICALLY, SMALL LIFTS ARE PLACED BETWEEN THE PIPES AND THEN ALLOWED TO SET-UP PRIOR TO THE PLACEMENT OF THE NEXT LIFT. THE ALLOWABLE THICKNESS OF THE CLSM LIFT IS A FUNCTION OF A PROPER BALANCE BETWEEN THE UPLIFT FORCE OF THE CLSM, THE OPPOSING WEIGHT OF THE PIPE, AND THE EFFECT OF OTHER RESTRAINING MEASURES. THE PIPE CAN CARRY LIMITED FLUID PRESSURE WITHOUT PIPE DISTORTION OR DISPLACEMENT, WHICH ALSO AFFECTS THE CLSM LIFT THICKNESS. YOUR LOCAL CONTECH SALES ENGINEER CAN HELP DETERMINE THE PROPER LIFT THICKNESS.

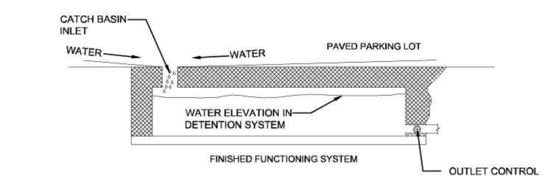


CONSTRUCTION LOADING

TYPICALLY, THE MINIMUM COVER SPECIFIED FOR A PROJECT ASSUMES H-20 LIVE LOAD. BECAUSE CONSTRUCTION LOADS OFTEN EXCEED DESIGN LIVE LOADS, INCREASED TEMPORARY MINIMUM COVER REQUIREMENTS ARE NECESSARY. SINCE CONSTRUCTION EQUIPMENT VARIES FROM JOB TO JOB, IT IS BEST TO ADDRESS EQUIPMENT SPECIFIC MINIMUM COVER REQUIREMENTS WITH YOUR LOCAL CONTECH SALES ENGINEER DURING YOUR PRE-CONSTRUCTION MEETING.

ADDITIONAL CONSIDERATIONS

BECAUSE MOST SYSTEMS ARE CONSTRUCTED BELOW-GRADE, RAINFALL CAN RAPIDLY FILL THE EXCAVATION; POTENTIALLY CAUSING FLOATATION AND MOVEMENT OF THE PREVIOUSLY PLACED PIPES. TO HELP MITIGATE POTENTIAL PROBLEMS, IT IS BEST TO START THE INSTALLATION AT THE DOWNSTREAM END WITH THE OUTLET ALREADY CONSTRUCTED TO ALLOW A ROUTE FOR THE WATER TO ESCAPE. TEMPORARY DIVERSION MEASURES MAY BE REQUIRED FOR HIGH FLOWS DUE TO THE RESTRICTED NATURE OF THE OUTLET PIPE.



CMP DETENTION SYSTEM INSPECTION AND MAINTENANCE

UNDERGROUND STORMWATER DETENTION AND INFILTRATION SYSTEMS MUST BE INSPECTED AND MAINTAINED AT REGULAR INTERVALS FOR PURPOSES OF PERFORMANCE AND LONGEVITY.

INSPECTION

INSPECTION IS THE KEY TO EFFECTIVE MAINTENANCE OF CMP DETENTION SYSTEMS AND IS EASILY PERFORMED. CONTECH RECOMMENDS ONGOING, QUARTERLY INSPECTIONS. THE RATE AT WHICH THE SYSTEM COLLECTS POLLUTANTS WILL DEPEND MORE ON SITE SPECIFIC ACTIVITIES RATHER THAN THE SIZE OR CONFIGURATION OF THE SYSTEM.

INSPECTIONS SHOULD BE PERFORMED MORE OFTEN IN EQUIPMENT WASHDOWN AREAS, IN CLIMATES WHERE SANDING AND/OR SALTING OPERATIONS TAKE PLACE, AND IN OTHER VARIOUS INSTANCES IN WHICH ONE WOULD EXPECT HIGHER ACCUMULATIONS OF SEDIMENT OR ABRASIVE/ CORROSIVE CONDITIONS. A RECORD OF EACH INSPECTION IS TO BE MAINTAINED FOR THE LIFE OF THE SYSTEM

MAINTENANCE

CMP DETENTION SYSTEMS SHOULD BE CLEANED WHEN AN INSPECTION REVEALS ACCUMULATED SEDIMENT OR TRASH IS CLOGGING THE DISCHARGE ORIFICE.

ACCUMULATED SEDIMENT AND TRASH CAN TYPICALLY BE EVACUATED THROUGH THE MANHOLE OVER THE OUTLET ORIFICE. IF MAINTENANCE IS NOT PERFORMED AS RECOMMENDED, SEDIMENT AND TRASH MAY ACCUMULATE IN FRONT OF THE OUTLET ORIFICE. MANHOLE COVERS SHOULD BE SECURELY SEATED FOLLOWING CLEANING ACTIVITIES. CONTECH SUGGESTS THAT ALL SYSTEMS BE DESIGNED WITH AN ACCESS/INSPECTION MANHOLE SITUATED AT OR NEAR THE INLET AND THE OUTLET ORIFICE. SHOULD IT BE NECESSARY TO GET INSIDE THE SYSTEM TO PERFORM MAINTENANCE ACTIVITIES, ALL APPROPRIATE PRECAUTIONS REGARDING CONFINED SPACE ENTRY AND OSHA REGULATIONS SHOULD BE FOLLOWED.

ANNUAL INSPECTIONS ARE BEST PRACTICE FOR ALL UNDERGROUND SYSTEMS. DURING THIS INSPECTION, IF EVIDENCE OF SALTING/DE-ICING AGENTS IS OBSERVED WITHIN THE SYSTEM, IT IS BEST PRACTICE FOR THE SYSTEM TO BE RINSED, INCLUDING ABOVE THE SPRING LINE SOON AFTER THE SPRING THAW AS PART OF THE MAINTENANCE PROGRAM FOR THE SYSTEM.

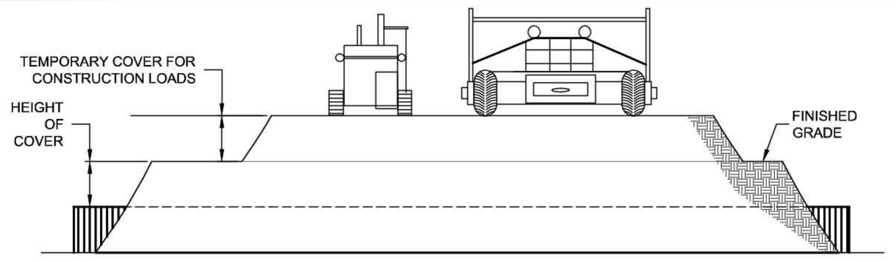
MAINTAINING AN UNDERGROUND DETENTION OR INFILTRATION SYSTEM IS EASIEST WHEN THERE IS NO FLOW ENTERING THE SYSTEM. FOR THIS REASON, IT IS A GOOD IDEA TO SCHEDULE THE CLEANOUT DURING DRY WEATHER.

THE FOREGOING INSPECTION AND MAINTENANCE EFFORTS HELP ENSURE UNDERGROUND PIPE SYSTEMS USED FOR STORMWATER STORAGE CONTINUE TO FUNCTION AS INTENDED BY IDENTIFYING RECOMMENDED REGULAR INSPECTION AND MAINTENANCE PRACTICES. INSPECTION AND MAINTENANCE RELATED TO THE STRUCTURAL INTEGRITY OF THE PIPE OR THE SOUNDNESS OF PIPE JOINT CONNECTIONS IS BEYOND THE SCOPE OF THIS GUIDE.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

DYODS - 12323-1-0
PROJECT NAME: Christ Community Church
Chapel Hill, NC
DESCRIPTION: WQV + MAIN DETENTION

PROJECT No.:	SEQ. No.:	DATE:
12323-1	0	8/23/2019
DESIGNED: DYODS		DRAWN: DYODS
CHECKED:		APPROVED:
SHEET NO.: D4		



CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM
SCALE: N.T.S.

SPECIFICATION FOR DESIGNED DETENTION SYSTEM:

SCOPE
THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE DESIGNED DETENTION SYSTEM DETAILED IN THE PROJECT PLANS.

MATERIAL
THE MATERIAL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-274 OR ASTM A-92.

THE GALVANIZED STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-218 OR ASTM A-929.

THE POLYMER COATED STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-246 OR ASTM A-742.

THE ALUMINUM COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-197 OR ASTM B-744.

CONSTRUCTION LOADS
CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURER'S OR NCSPA GUIDELINES.

PIPE
THE PIPE SHALL BE MANUFACTURED IN ACCORDANCE TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2: AASHTO M-36 OR ASTM A-760

GALVANIZED: AASHTO M-36 OR ASTM A-760

POLYMER COATED: AASHTO M-245 OR ASTM A-762

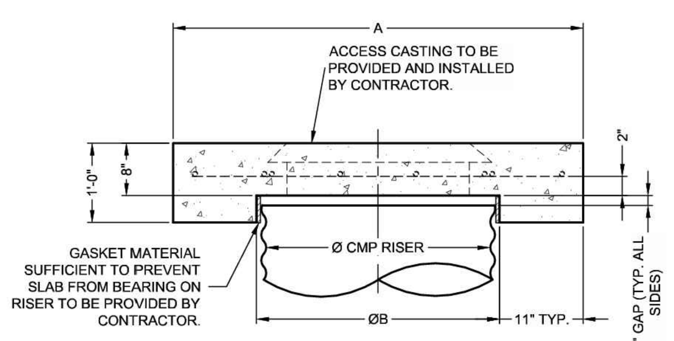
ALUMINUM: AASHTO M-196 OR ASTM B-745

HANDLING AND ASSEMBLY
SHALL BE IN ACCORDANCE WITH NCSP'S (NATIONAL CORRUGATED STEEL PIPE ASSOCIATION) FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL. SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR ALUMINUM PIPE.

INSTALLATION
SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II DIVISION II OR ASTM A-798 (FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL) OR ASTM B-788 (FOR ALUMINUM PIPE) AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

NOTE:
THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

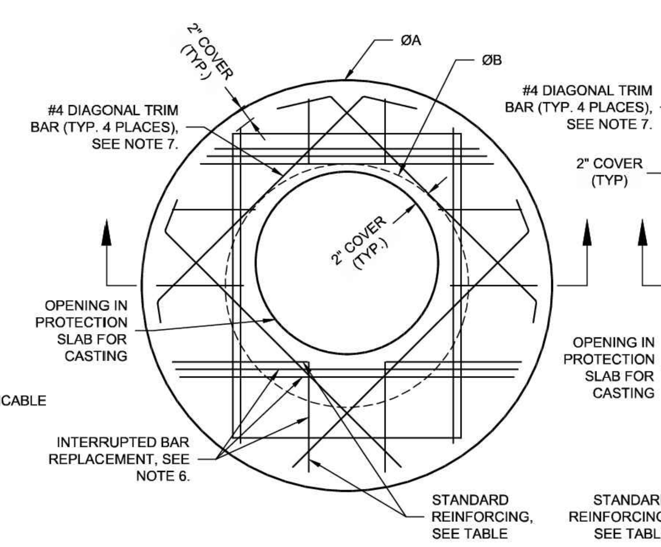


SECTION VIEW

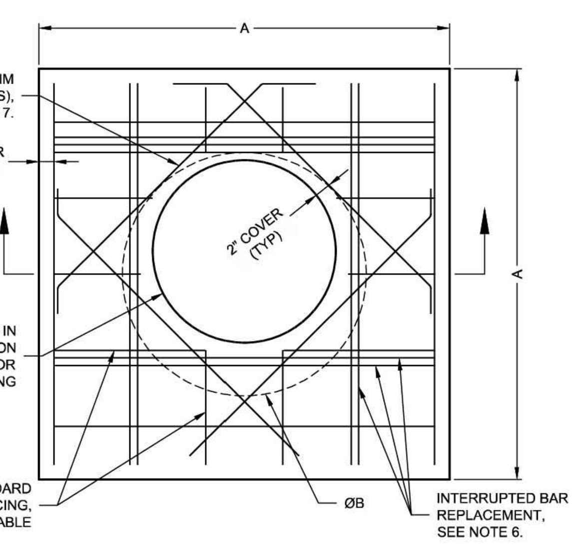
REINFORCING TABLE

Ø CMP RISER	A	Ø B	REINFORCING	**BEARING PRESSURE (PSF)
24"	Ø 4' 4'X4'	26"	#5 @ 12" OCEW #5 @ 12" OCEW	2,410 1,780
30"	Ø 4'-6" 4'-6" X 4'-6"	32"	#5 @ 12" OCEW #5 @ 12" OCEW	2,120 1,530
36"	Ø 5' 5' X 5'	38"	#5 @ 10" OCEW #5 @ 10" OCEW	1,890 1,350
42"	Ø 5'-6" 5'-6" X 5'-6"	44"	#5 @ 10" OCEW #5 @ 9" OCEW	1,720 1,210
48"	Ø 6' 6' X 6'	50"	#5 @ 9" OCEW #5 @ 8" OCEW	1,600 1,100

** ASSUMED SOIL BEARING CAPACITY



ROUND OPTION PLAN VIEW



SQUARE OPTION PLAN VIEW

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION.
2. DESIGN LOAD HS25.
3. EARTH COVER = 1' MAX.
4. CONCRETE STRENGTH = 3,500 psi
5. REINFORCING STEEL = ASTM A615, GRADE 60.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
9. DETAIL DESIGN BY DELTA ENGINEERING, BINGHAMTON, NY.

MANHOLE CAP DETAIL
SCALE: N.T.S.

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DYODS - 12323-1-0
PROJECT NAME: Christ Community Church
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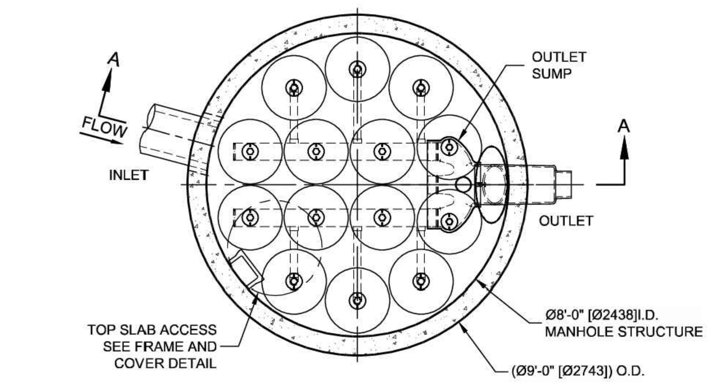
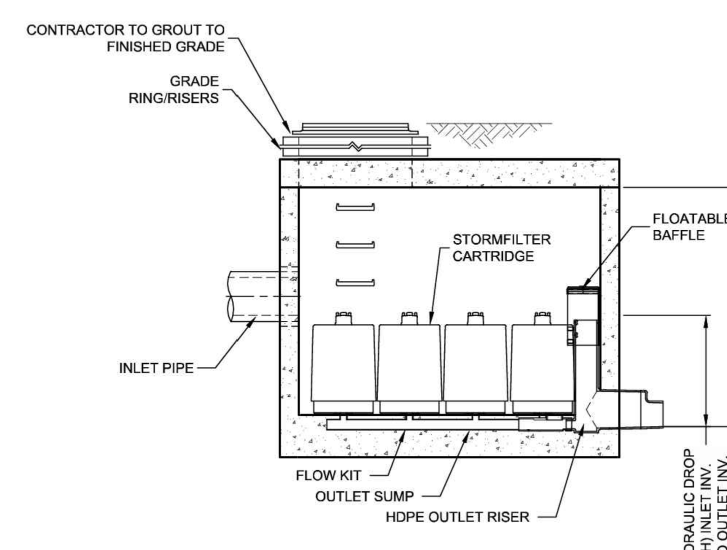
PROJECT No.:	SEQ. No.:	DATE:
12323-1	0	8/23/2019
DESIGNED: DYODS		DRAWN: DYODS
CHECKED:		APPROVED:
SHEET NO.: D3		



PLAN VIEW
STANDARD OUTLET RISER
FLOWKIT: 43A



SECTION A-A

The Stormwater Management StormFilter®
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,322,629; 5,524,576; 5,707,527; 5,985,157; 6,027,639; 6,649,048; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

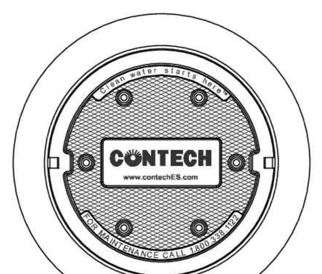
STORMFILTER DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (14). VOLUME SYSTEM IS ALSO AVAILABLE WITH MAXIMUM 14 CARTRIDGES. Ø8'-0" [2438 mm] MANHOLE STORMFILTER PEAK HYDRAULIC CAPACITY IS 1.8 CFS [51 L/s] . IF THE SITE CONDITIONS EXCEED 1.8 CFS [51 L/s] AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27" [686 mm]			18" [458 mm]			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05' [930 mm]			2.3' [700 mm]			1.8' [550 mm]		
SPECIFIC FLOW RATE (gpm/sf) [L/s/m^2]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]
CARTRIDGE FLOW RATE (gpm) [L/s]	22.5 [1.42]	18.79 [1.19]	11.25 [0.71]	15 [0.95]	12.53 [0.79]	7.5 [0.44]	10 [0.63]	8.35 [0.54]	5 [0.32]

* 1.67 gpm/sf [1.08 L/s/m^2] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			*
WATER QUALITY FLOW RATE (cfs) [L/s]			*
PEAK FLOW RATE (cfs) [L/s]			*
RETURN PERIOD OF PEAK FLOW (yrs)			*
CARTRIDGE HEIGHT (SEE TABLE ABOVE)			*
NUMBER OF CARTRIDGES REQUIRED			*
CARTRIDGE FLOW RATE			*
MEDIA TYPE (PERLITE, ZPG, PSORB)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' [1524 mm] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
6. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES [178 mm]. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
7. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) [L/s] DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft)[m^2].
8. STORMFILTER STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET PIPE(S).
E. CONTRACTOR TO PROVIDE AND INSTALL CONNECTOR TO THE OUTLET RISER STUB. STORMFILTER EQUIPPED WITH A DUAL DIAMETER HDPE OUTLET STUB AND SAND COLLAR. IF OUTLET PIPE IS LARGER THAN 8 INCHES [200 mm], CONTRACTOR TO REMOVE THE 8 INCH [200 mm] OUTLET STUB AT MOLDED-IN CUT LINE. COUPLING BY FERNCO OR EQUAL AND PROVIDED BY CONTRACTOR.
F. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

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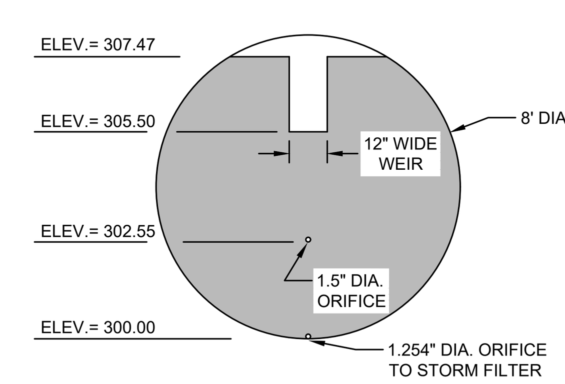
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

SFMH96
STORMFILTER
STANDARD DETAIL



WEIR PLATE DETAIL
1" = 4'

PRELIMINARY
NOT FOR CONSTRUCTION

PHILIP POST ENGINEERING
FIRM: C-347
Philip N. Post, PE, PLS
(919) 818-7862
philip.n.post@gmail.com
PO Box 4912
Chapel Hill, NC 27515

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CHRIST COMMUNITY CHURCH

141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-39-9116 AND 9799-49-0235

STORMWATER FILTERA DETAILS

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

#	#	#	#
2/26/2020	6	NCDOT AND TOWN COMMENTS	DC
2-9-2020	5	TOWN COMMENTS	#DC
1-27-2020	4	PROPERTY LINE SWAP	DC
1-17-2020	3	SUBMITTAL #2 COMMENTS	DC
12-27-2019	2	OWASA 11/13/2019 COMMENTS	DC
11-17-2019	1	SUBMITTAL #1 COMMENTS	DC
DATE	NO.	REVISIONS	BY

ALL DOCUMENTS PREPARED BY PHILIP POST ENGINEERING ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PHILIP POST ENGINEERING FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PHILIP POST ENGINEERING; AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PHILIP POST ENGINEERING FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	-
DRAWN BY	DC
APPROVED BY	PP

C008

SHEET 9 OF 16

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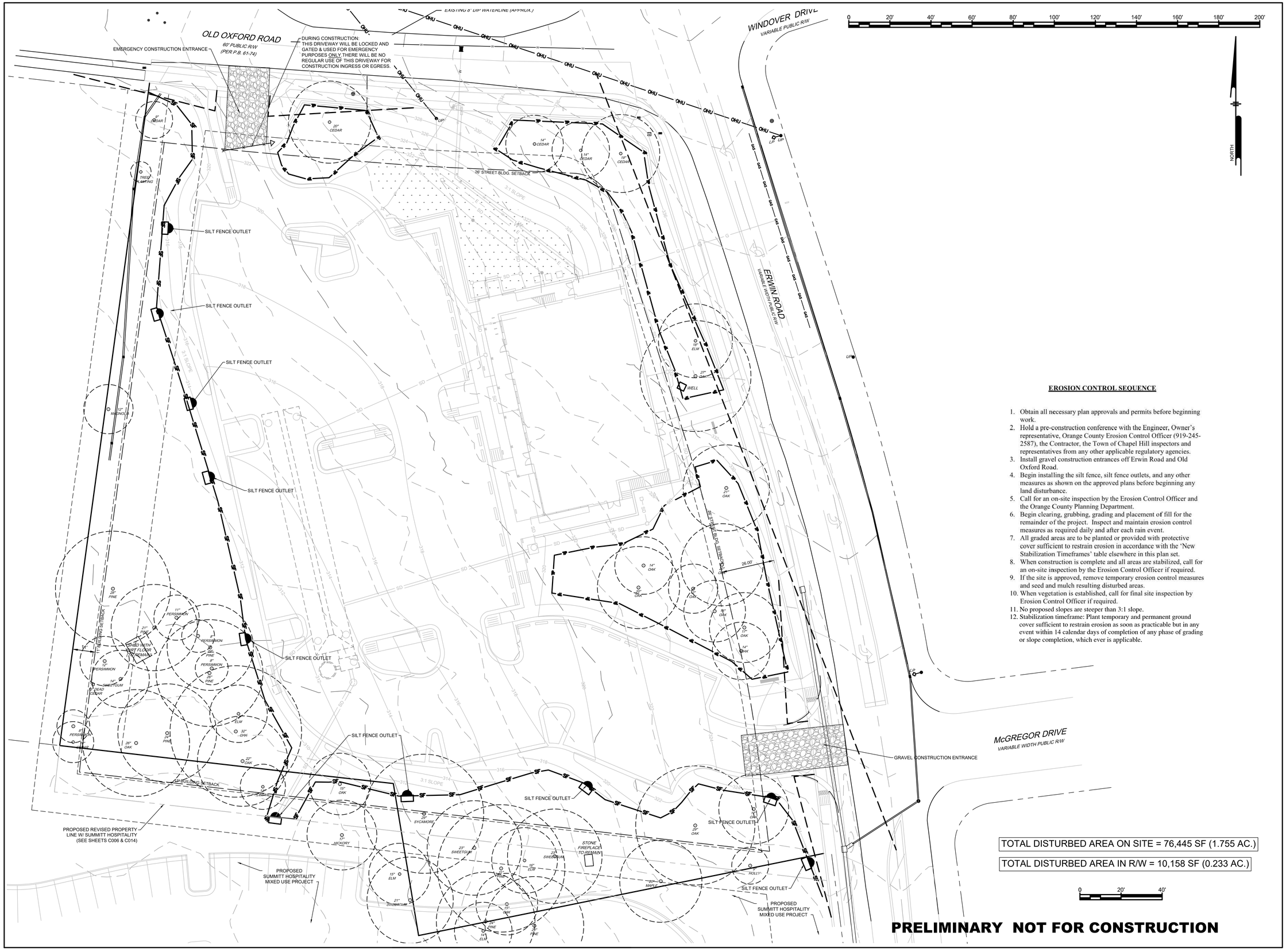

EROSION CONTROL SEQUENCE

1. Obtain all necessary plan approvals and permits before beginning work.
2. Hold a pre-construction conference with the Engineer, Owner's representative, Orange County Erosion Control Officer (919-245-2587), the Contractor, the Town of Chapel Hill inspectors and representatives from any other applicable regulatory agencies.
3. Install gravel construction entrances off Erwin Road and Old Oxford Road.
4. Begin installing the silt fence, silt fence outlets, and any other measures as shown on the approved plans before beginning any land disturbance.
5. Call for an on-site inspection by the Erosion Control Officer and the Orange County Planning Department.
6. Begin clearing, grubbing, grading and placement of fill for the remainder of the project. Inspect and maintain erosion control measures as required daily and after each rain event.
7. All graded areas are to be planted or provided with protective cover sufficient to restrain erosion in accordance with the 'New Stabilization Timeframes' table elsewhere in this plan set.
8. When construction is complete and all areas are stabilized, call for an on-site inspection by the Erosion Control Officer if required.
9. If the site is approved, remove temporary erosion control measures and seed and mulch resulting disturbed areas.
10. When vegetation is established, call for final site inspection by Erosion Control Officer if required.
11. No proposed slopes are steeper than 3:1 slope.
12. Stabilization timeframe: Plant temporary and permanent ground cover sufficient to restrain erosion as soon as practicable but in any event within 14 calendar days of completion of any phase of grading or slope completion, which ever is applicable.

PHILIP POST ENGINEERING
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PO Box 4912
Chapel Hill, NC 27515
FIRM: C-347

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CHRIST COMMUNITY CHURCH

141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-99-9116 AND 9799-49-0235

EROSION CONTROL PLAN

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

#	DATE	REVISIONS	BY
#	2/26/2020	6 NCDOT AND TOWN COMMENTS	DC
#	2-9-2020	5 TOWN COMMENTS	#DC
#	1-27-2020	4 PROPERTY LINE SWAP	DC
#	1-17-2020	3 SUBMITTAL #2 COMMENTS	DC
#	12-27-2019	2 OWASA 11/13/2019 COMMENTS	DC
#	11-17-2019	1 SUBMITTAL #1 COMMENTS	DC

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PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	1" = 20'
DRAWN BY	DC
APPROVED BY	PNP

C009

SHEET 10 OF 16

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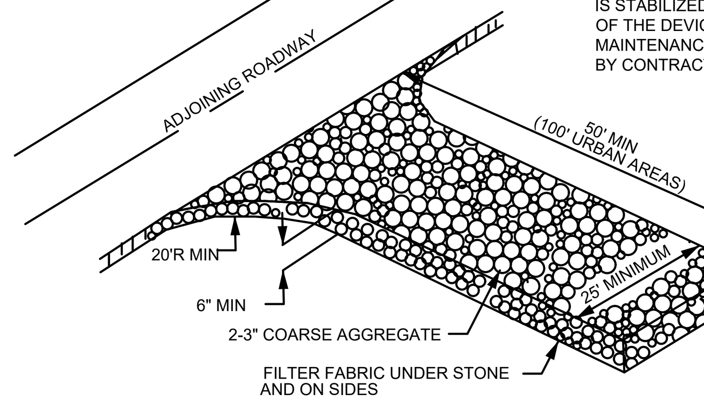


NOTES:
APPLICABLE AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED. FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE MUST BE PROVIDED BY CONTRACTOR.

NOTES:
WASHED STONE PAD TO BE 50'L X 25'W X 6"TH MINIMUM (100'L MIN IN URBAN AREAS). IF THE ADJOINING ROADWAY IS WIDER THAN 25', THEN THE WASHED STONE SHALL BE AS WIDE AS THE ADJOINING ROADWAY.

TURNING RADIUS OF 20' MINIMUM TO ACCOMMODATE LARGE TRUCKS SHALL BE PROVIDED.

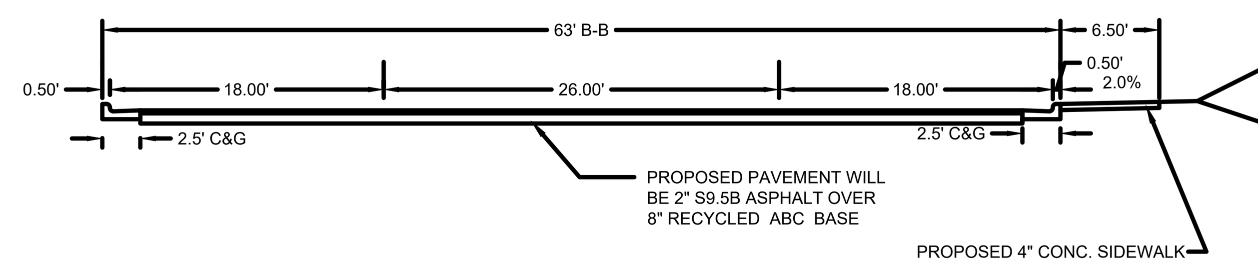
ENTRANCE(S) SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM USE BY ALL CONSTRUCTION VEHICLES.

MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO ADJACENT STREETS.

PERIODIC TOP DRESSING WITH STONE (2" THICK) WILL BE NECESSARY. ANY MATERIAL WHICH STILL MAKES IT ONTO THE ROAD MUST BE CLEANED UP IMMEDIATELY.

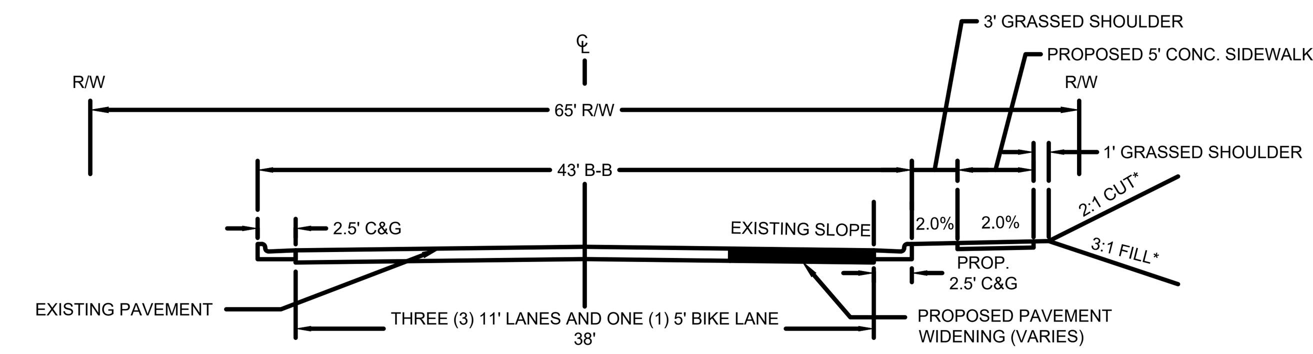
TEMPORARY GRAVEL CONSTRUCTION ENTRANCE / EXIT

NTS



PARKING LOT TYPICAL SECTION

NTS



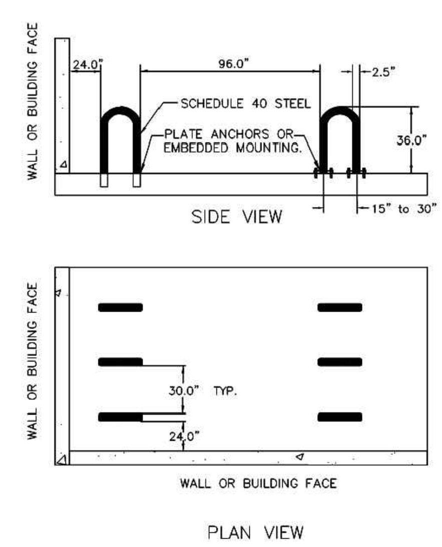
ERWIN ROAD PROPOSED CURB SECTION

NTS

NPDES Stormwater Discharge Permit for Construction Activities (NCGO1) — NCDENR/Division of Water Quality

NEW STABILIZATION TIMEFRAMES
(Effective Aug. 3, 2011)

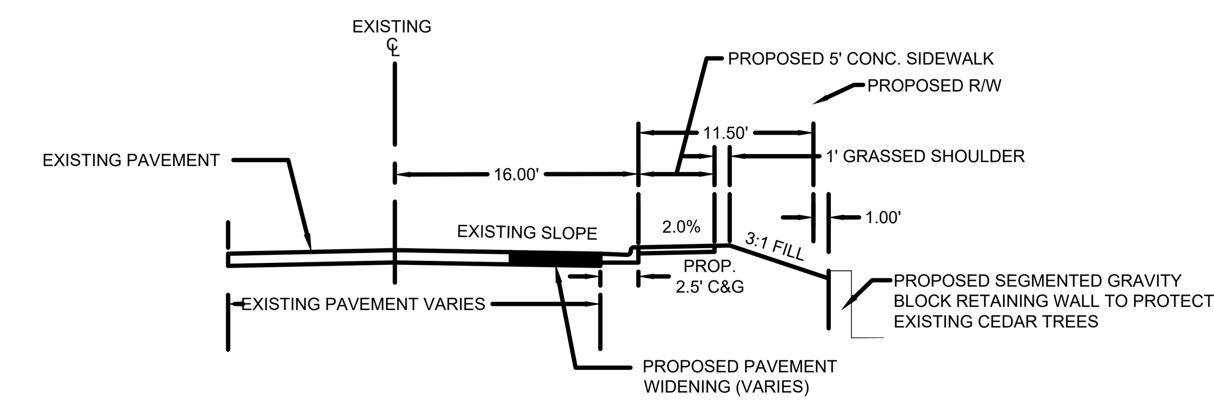
Site Area Description	Stabilization	Timeframe Exceptions
Perimeter dikes, swales, ditches, slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed.
Slopes 3:1 or flatter	14 days	7 days for slopes greater than 50' in length.
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW Zones.



NOTES:
1. BIKE RACKS SHOULD BE INSTALLED AS PER MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.
2. ALTERNATIVE BIKE RACKS OR LOCKERS MAY BE USED BUT ARE SUBJECT TO APPROVAL BY THE TOWN AND/OR COUNTY.
3. ALL DIMENSIONS SHOWN ARE MINIMUM.

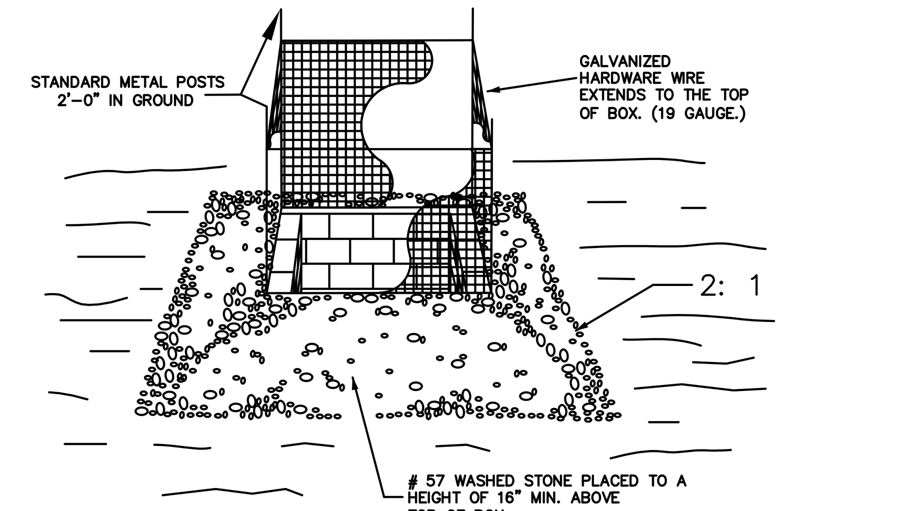
(4) BICYCLE RACK BARS (8 BICYCLES)

NTS



OLD OXFORD ROAD PROPOSED CURB SECTION

NTS



CONSTRUCTION SPECIFICATIONS:
1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING INLET.
2. DRIVE 5' STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4' APART.
3. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, & BOTTOM. PLACING A 2-FT. FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. PLACE CLEAN GRAVEL (NC DOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16" AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.
5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
6. COMPACT THE AREA PROPERLY AND STABILIZE IT WITH GROUNDCOVER.

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

Inlet Protection

Not to scale

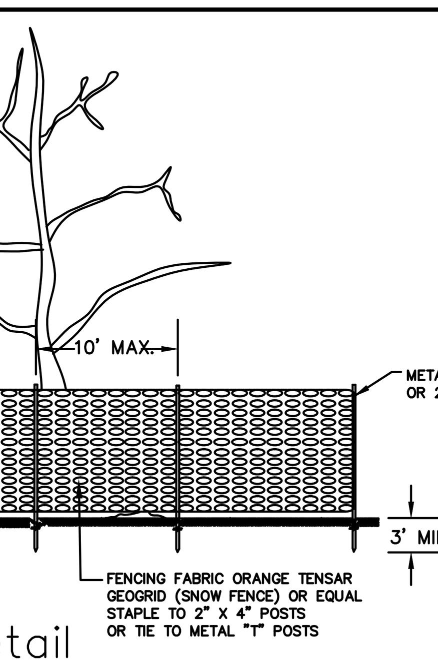
LANDSCAPE PROTECTION NOTES

PRE- CONSTRUCTION CONFERENCE - PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES A PRE-CONSTRUCTION CONFERENCE WITH TOWN'S URBAN FORESTER SHALL TAKE PLACE TO REVIEW PROCEDURES FOR PROTECTION AND MANAGEMENT OF ALL PROTECTED LANDSCAPE ELEMENTS IDENTIFIED ON THE LANDSCAPE PROTECTION PLANS.

ANY TREE ROOT EXPOSED BY CONSTRUCTION WILL BE SEVERED CLEANLY WITH A PRUNING TOOL.

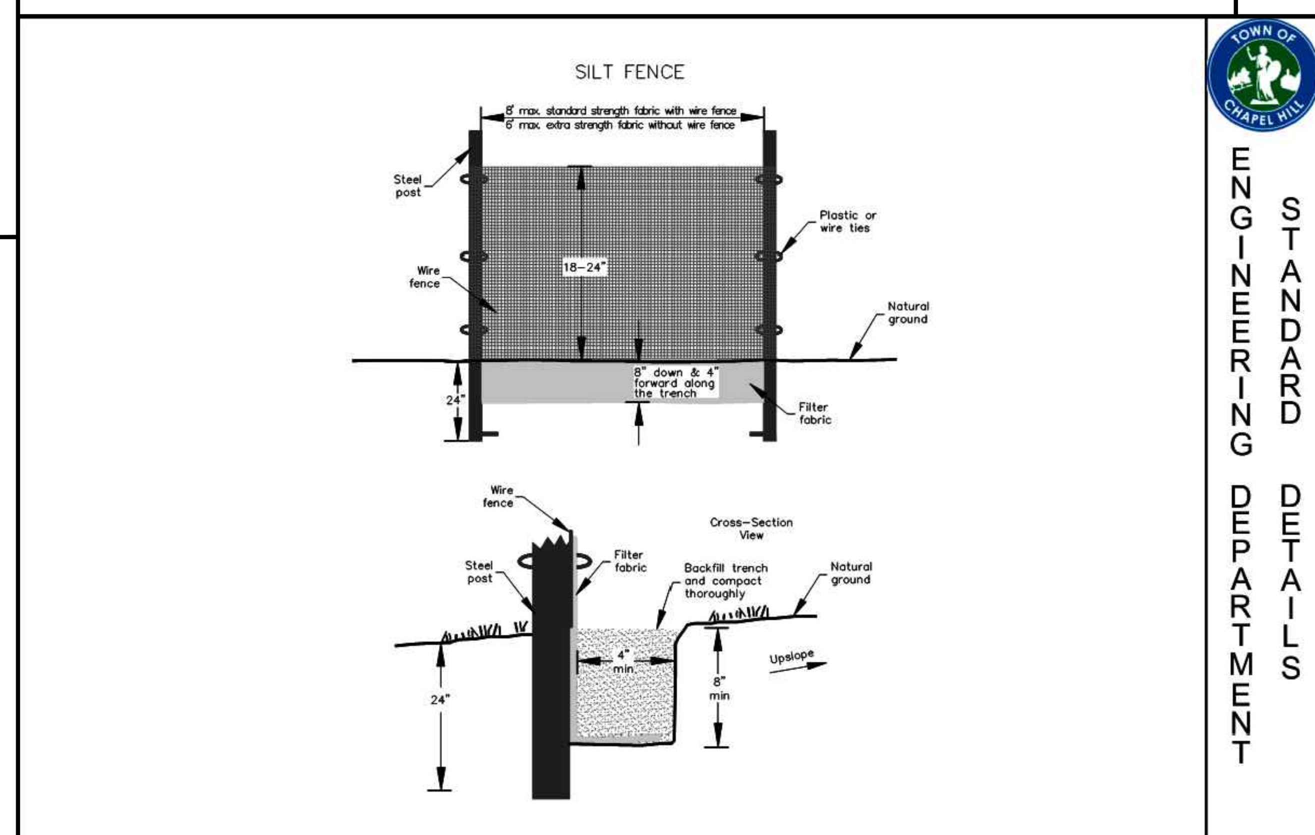
NO NAILS, ROPES, CABLES, SIGNS, OR FENCING SHALL BE ATTACHED TO ANY PART OF ANY TREE THAT IS TO REMAIN.

TREES THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE TREATED SO AS TO PROMOTE THEIR CONTINUED HEALTH.



Tree Protection Fence Detail

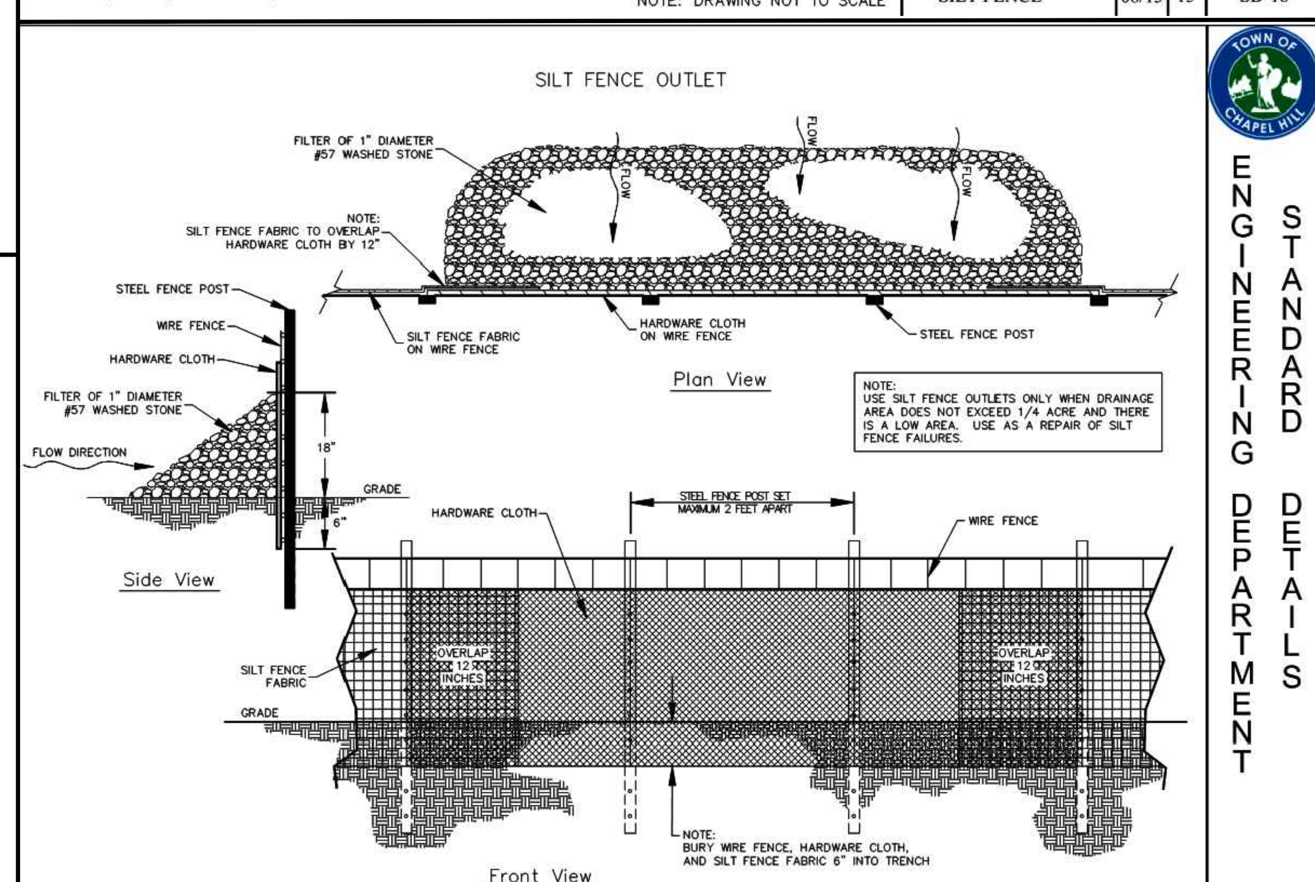
Not to scale



GENERAL NOTES:
1. Use silt fence only when drainage area does not exceed 1/4 acre and never in areas of concentrated flow.
2. Silt fence shall not be removed unless site is stabilized and inspected by Town of Chapel Hill staff.

NOTE: DRAWING NOT TO SCALE

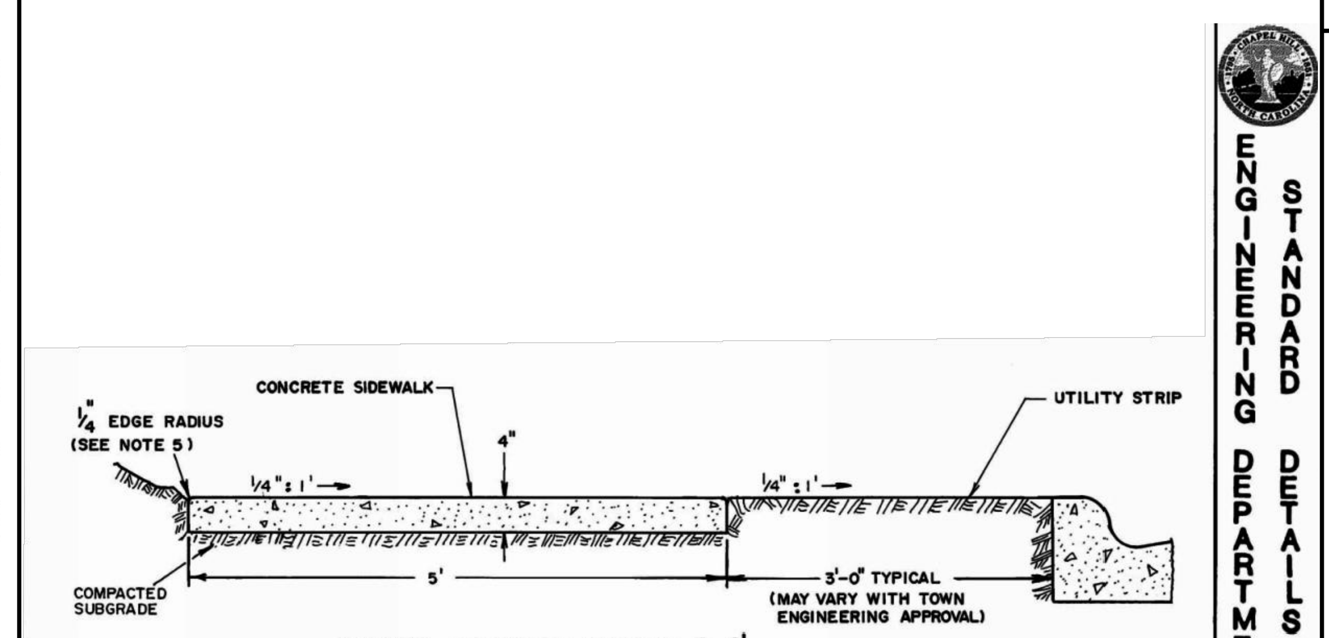
TITLE:	REVISIONS		DET. NO.
SILT FENCE	08/13	15	SD-18



NOTE:
USE SILT FENCE OUTLETS ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND THERE IS A LOW AREA. USE AS A REPAIR OF SILT FENCE FAILURES.

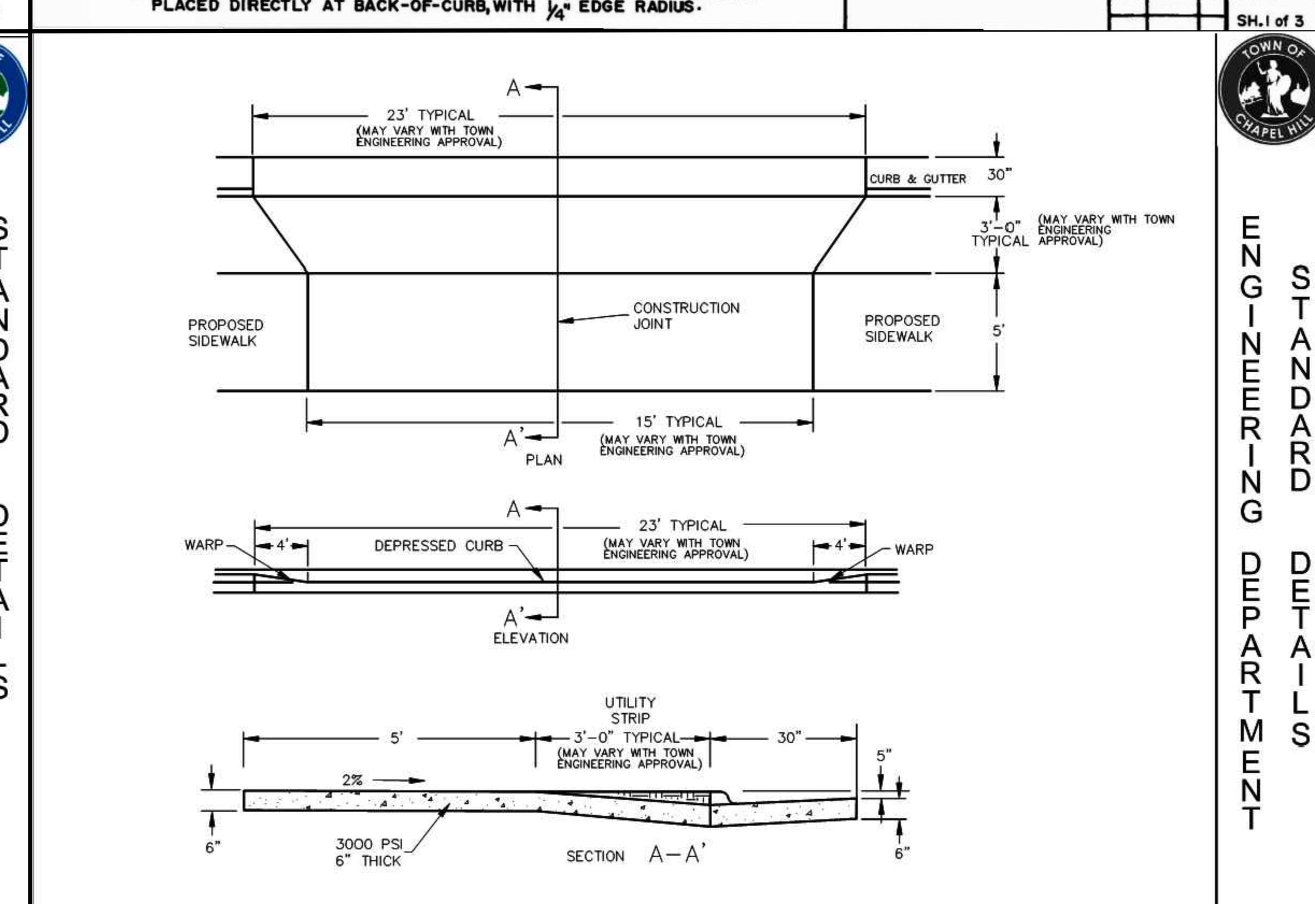
NOTE: DRAWING NOT TO SCALE

TITLE:	REVISIONS		DET. NO.
SILT FENCE OUTLET	08/13	15	SD-19



NOTES:
1. ALL CONCRETE 3000 PSI.
2. SEE STANDARD DETAIL "D-1" FOR THROUGH DRIVEWAY SPECIFICATIONS.
3. EXPANSION JOINTS 50' APART MAXIMUM.
4. CONTROL JOINT EVERY 5 FEET.
5. ALL SIDEWALKS SHALL BE CONSTRUCTED WITH TOOLED 1/4" EDGE RADIUS.
6. IF UTILITY STRIP IS COMPLETELY ELIMINATED, SIDEWALK SHALL BE PLACED DIRECTLY AT BACK-OF-CURB, WITH 1/4" EDGE RADIUS.

TITLE	REVISIONS NO	DATE	BY	DET.NO.
TYPICAL SIDEWALK				ST-4 SH.1 of 3



NOTE: DRAWING NOT TO SCALE

TITLE:	REVISIONS		DET. NO.
FAN TYPE DRIVEWAY ENTRANCE	10/15	MR	D-1

PERMANENT SEEDING IN NORTH CAROLINA (TABLE 6.11L)

SEEDING MIXTURE

SPECIES	RATE (LB/ACRE)
TALL FESCUE	250
SERICEA LESPEDEZA	20
KOBE LESPEDEZA	10
	50

SEEDING NOTES
1. AFTER AUGUST 15 USE UNSCARIFIED SERICEA SEED.
2. WHERE PERIODIC MOWING IS PLANNED OR A NEAR APPEARANCE IS DESIRED, OMIT SERICEA AND INCREASE KOBE LESPEZEDA TO 40 LB/ACRE.
3. TO EXTEND SPRING SEEDING DATES INTO JUNE, ADD 15LB/ACRE HULLED BERMUDAGRASS. HOWEVER, AFTER MID-APRIL IT IS PREFERABLE TO SEED TEMPORARY COVER.

NURSE PLANTS
BETWEEN MAY 1 AND AUGUST 15, ADD 10 LB/ACRE GERMAN MILLET OR 15LB/ACRE SUDANGRASS. PRIOR TO MAY 1 OR AFTER AUGUST 15 ADD 40 LB/ACRE RYE (GRAIN).

SEEDING DATES

	BEST	POSSIBLE
FALL:	AUGUST 25 - SEPTEMBER 15	AUGUST 20 - OCTOBER 25
LATE WINTER:	FUBRUARY 15 - MARCH 21	FEBRUARY 1 - APRIL 15

FALL IS BEST FOR ALL FESCUE AND LATE WINTER FOR LESPEDEZAS. OVER SEEDING OF KOBE LESPEZEDA OVER FALL-SEEDED TALL FESCUE IS VERY EFFECTIVE.

SOIL AMENDMENTS
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 4,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 1,000 LB/ACRE 10-10-10 FERTILIZER.

MULCH
APPLY 4,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR ROVING OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE
REFERTILIZE IN THE SECOND YEAR UNLESS GROWTH IS FULLY ADEQUATE. MAY BE MOWED ONCE OR TWICE A YEAR, BUT MOWING IS NOT NECESSARY. RESEED, FERTILIZE AND MULCH DAMAGED AREAS IMMEDIATELY.

SEEDING SCHEDULE

1.) CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2.) RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
3.) REMOVE ALL LOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4.) APPLY AGRICULTURAL LIME, FERTILIZER, AND UNIFORMLY AND MIX WITH SOIL (SEE BELOW*).
5.) CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES
6.) SEED ON A FRESHLY PREPARED SEEDBED AND SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK
7.) MULCH IMMEDIATELY AFTER SEEDING
8.) INSPECT ALL SEEDED AREAS AND MAKE NECESSARY RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. STAND SHOULD BE OVER 60% DAMAGED, REESTABLISH WITH ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
9.) CONSULT CONSERVATION INSPECTOR ON MAINTENANCE AND FERTILIZATION AFTER PERMANENT COVER IS STABILIZED.

* APPLY:
AGRICULTURAL LIMESTONE - 2 TONS/ ACRES (3 TONS/ ACRE IN CLAY SOILS)
FERTILIZER - 1,000 lbs. / ACRE -10-10-10
SUPERPHOSPHATE- 500 lbs> / ACRE -20% ANALYSIS
MLCH -2 TONS / ACRE (5000 LBS/AC FOR STEEP SLOPES) - SMALL GRAIN STRAW
ANOTHER - ASPHALT EMULSION @ 300 GALS./ ACRE

SEEDBED PREPARATION

MAINTENANCE:
NEW SEEDLINGS SHOULD BE INSPECTED FREQUENTLY AND MAINTENANCE PERFORMED AS NEEDED. IF RILLS ANG GULLIES DEVELOP, THEY MUST BE FILLED, RE-SEEDED, AND MULCHED AS SOON AS POSSIBLE. DIVERSIONS MAY BE NEEDED UNTIL NEW PLANTS TAKE HOLD.
DAMAGE TO VEGETATION FROM DISEASE, INSECTS, TRAFFIC, ETC., CAN OCCUR AT ANY TIME. HERBICIDES AND REGULAR MOWING MAY BE NEEDED TO CONTROL WEEDS. DUST AND SPRAYS MAY BE NEEDED TO CONTROL INSECTS.
WEEK OR DAMAGED SPOTS MUST BE RELIMED, FERTILIZED, MULCHED, AND RESEEDED AS PROMPTLY AS POSSIBLE.

TEMPORARY SEEDING IN NORTH CAROLINA

SEEDING MIXTURE

	SPECIES	RATE (LB/ACRE)
LATE WINTER & EARLY SPRING	RYE (GRAIN)	120
	ANNUAL LESPEDEZA (KOBE IN PIEDMONT AND COASTAL PLAIN, KOREAN IN MOUNTAINS)	50
SUMMER	GERMAN MILLET	40
	OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IN THE PIEDMONT AND MOUNTAINS, A SMALL-STEMMED SUNDAGRASS	
FALL	RYE (GRAIN)	120
	IS NOT TO EXTEND BEYOND JUNE. MAY BE SUBSTITUED AT A RATE OF 50 LB/ACRE.	

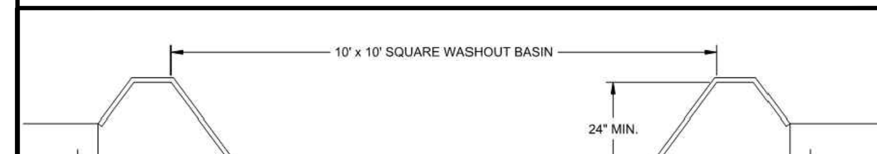
SEEDING DATES:

LATE WINTER & EARLY SPRING	MOUNTAINS - ABOVE 2500 ft: FEB. 15 - MAY 15; BELOW 2500 ft: FEB. 1 - MAY 1 PIEDMONT - JAN. 1 - MAY 1 COASTAL PLAIN - DEC. 1 - APR. 15
SUMMER	MOUNTAINS - MAY 15 - AUG. 15 PIEDMONT - MAY 1 - AUG. 15 COASTAL PLAIN - APR. 15 - AUG. 15
FALL	MOUNTAINS - AUG. 15 - DEC. 15 COASTAL PLAIN AND PIEDMONT - AUG. 15 - DEC. 30

SOIL AMENDMENTS
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LBS/ACRE 10-10-10 FERTILIZER

MULCH
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, FERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.



NOTES:
1. INSTALL CONCRETE WASHOUT PIT AT LOCATION(S) SHOWN ON PLANS.
2. LINE PIT WITH IMPERVIOUS FABRIC OR POLYETHYLENE SHEET. ANCHOR FABRIC INTO GROUND OUTSIDE PIT AS SHOWN.
3. MAXIMUM WATER AND SEDIMENT DEPTH IS 12". PIT MUST BE EXCAVATED AND RE-LINED WHEN DEPTH OF SEDIMENT REACHES 12" OR COMBINED WATER/SEDIMENT DEPTH EXCEEDS 12" FOLLOWING WASHOUT OF CONCRETE TRUCK.
4. ALLOW WATER TO EVAPORATE COMPLETELY PRIOR TO EXCAVATING PIT.
5. WASHOUT PIT MAY BE LOCATED NO CLOSER THAN 50' TO DRAINS, INLETS, OR SURFACE WATERS.

CONCRETE WASHOUT PIT

PRELIMINARY
NOT FOR CONSTRUCTION

Philip N. Post, PE, PLS
(919) 818-7862
philip.n.post@gmail.com
PO Box 4912
Chapel Hill, NC 27515
PHILIP POST ENGINEERING
FIRM: C-347

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CHRIST COMMUNITY CHURCH

141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-39-9116 AND 9799-49-0235

SITE DETAILS

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

DATE	NO.	REVISIONS	BY
#	#	#	#
2/26/2020	6	NCDOT AND TOWN COMMENTS	DC
2-9-2020	5	TOWN COMMENTS	#DC
1-27-2020	4	PROPERTY LINE SWAP	DC
1-17-2020	3	SUBMITTAL #2 COMMENTS	DC
12-27-2019	2	OWASA 11/13/2019 COMMENTS	DC
11-17-2019	1	SUBMITTAL #1 COMMENTS	DC

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PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	-
DRAWN BY	DC
APPROVED BY	PP

C010

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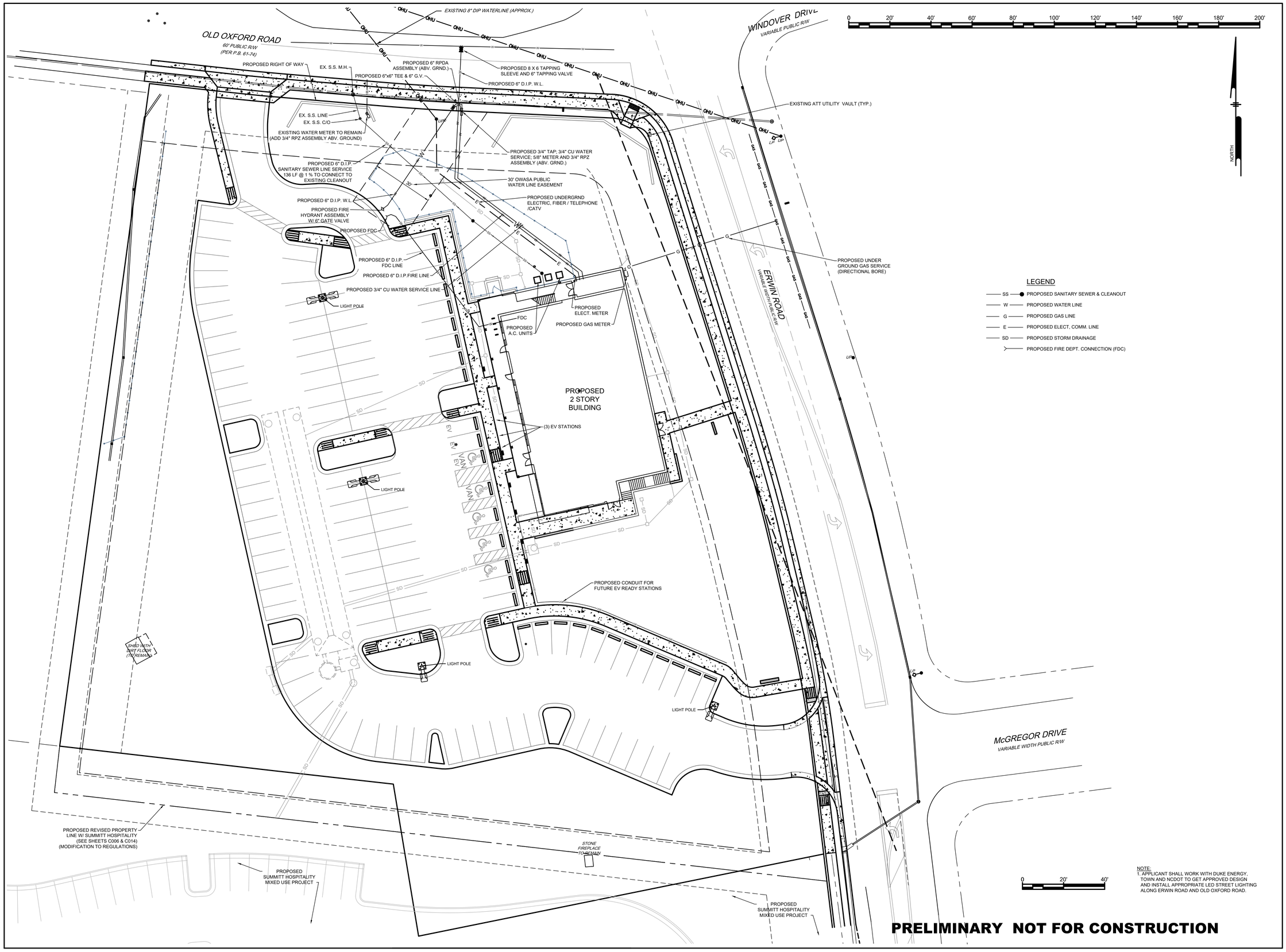

Phillip N. Post, PE, PLS
(919) 818-7862
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Chapel Hill, NC 27515
PHILIP POST ENGINEERING
FIRM: C-347

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CHRIST COMMUNITY CHURCH

141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-39-9116 AND 9799-49-0235

UTILITY PLAN & FIRE DEPT. FDC

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

#	#	#	
2/26/2020	6	NCDOT AND TOWN COMMENTS	DC
2-9-2020	5	TOWN COMMENTS	#DC
1-27-2020	4	PROPERTY LINE SWAP	DC
1-17-2020	3	SUBMITTAL #2 COMMENTS	DC
12-27-2019	2	OWASA 11/13/2019 COMMENTS	DC
11-17-2019	1	SUBMITTAL #1 COMMENTS	DC
DATE:	NO.	REVISIONS	BY

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PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	1" = 20'
DRAWN BY	DC
APPROVED BY	PNP

C011

SHEET 12 OF 16

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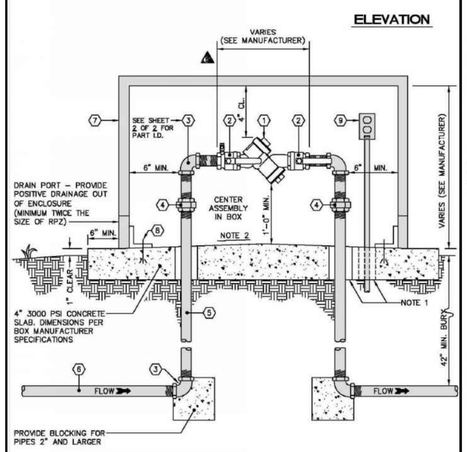
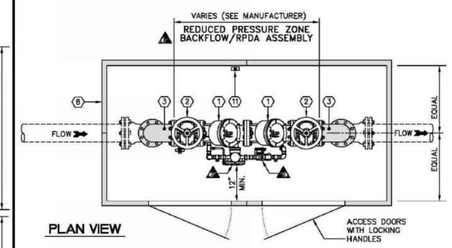
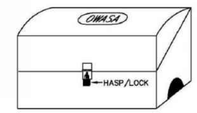




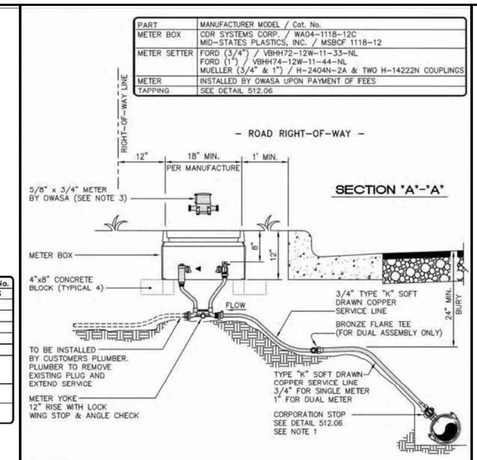


TYPICAL ENCLOSURE

#	PART	MANUFACTURER MODEL / Cat. No.
1	BACKFLOW PREVENTION ASSEMBLY, AS APPLICABLE	SEE SPECS. 02510 – PRODUCTS
2	1/4 TURN FULL PORT BRONZE BALL SHUT-OFF VALVE	----
3	90° BRASS ELBOW	----
4	THREADED UNION	----
5	3/4" THRU 2 1/2" STAINLESS STEEL OR BRASS THREADED PIPE	----
6	3/4" THRU 2 1/2" STAINLESS STEEL OR BRASS THREADED PIPE	----
7	INSULATED ENCLOSURE WITH LOCKING ACCESS AND HEATER (120 V, 1 PHASE, 60 HZ) VERIFY FITTINGS WILL FIT INSIDE BOX BEFORE ORDERING	HOTBOX / HB.75 – HB3E (OR APPROVED EQUIVALENT)
8	STAINLESS STEEL ANCHOR BOLTS PER BOX MANUFACTURER RECOMMENDED SIZE AND SPACING	----
9	PROVIDE 120V RECEPTACLE ON GFCI NEAR PIPE RISER, SET MINIMUM 18" ABOVE FLOOR	UL STD. 943–NEMA 3R.

NOTES:
1. Provide minimum 1" annular clearance around all risers and electrical conduit.
2. Slope floor to drain to ports at both ends. Ensure positive surface grade away from enclosure.

PART	MANUFACTURER MODEL / Cat. No.
METER BOX	CDR SYSTEMS CORP. / WA04–1118–12C MID–STATES PLASTICS, INC. / MSBCF 1118–12
METER SETTER	FORD (3/4") / VBH172–12W–11–33–NL FORD (1") / VBH174–12W–11–44–NL MUELLER (3/4" & 1") / H–2404N–2A & TWO H–14222N COUPLINGS
METER	INSTALLED BY OWASA UPON PAYMENT OF FEES
TAPPING	SEE DETAIL 512.06



NOTES:
1. Bronze service saddles shall be used on all service connections. Direct taps shall be made only as directed by an OWASA representative. See tapping detail 512.06.
2. Omitted
3. If installation is for stub-out meter, meter should be purchased from OWASA. (At applicants expense)
4. Meter must be level across meter connections.
5. Substitution requires approval by OWASA's Director of Engineering.

OWASA Quality Service Since 1977 — 400 Jones Ferry Road, PO Box 366, Carrboro, NC 27510-0366 — ORANGE WATER AND SEWER AUTHORITY — USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY — Voice (919) 968-4421, FAX (919) 968-4464, www.owasa.org
3/4" to 2" RPZ ASSEMBLY (ABOVE GROUND) — SCALE: Not To Scale — DETAIL # 515.06 — REVISION DATE: December 20, 2016 — SHEET # 1 of 3

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2 1/2" to 10" RPZ, RPDA ASSEMBLY (ABOVE GROUND) — SCALE: Not To Scale — DETAIL # 515.10 — REVISION DATE: December 20, 2016 — SHEET # 2 of 3

OWASA — 400 Jones Ferry Road, PO Box 366, Carrboro, NC 27510-0366 — ORANGE WATER AND SEWER AUTHORITY — USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY — Voice (919) 968-4421, FAX (919) 968-4464, www.owasa.org
3/4" to 2" RPZ ASSEMBLY (ABOVE GROUND) — SCALE: Not To Scale — DETAIL # 515.06 — REVISION DATE: December 20, 2016 — SHEET # 3 of 3

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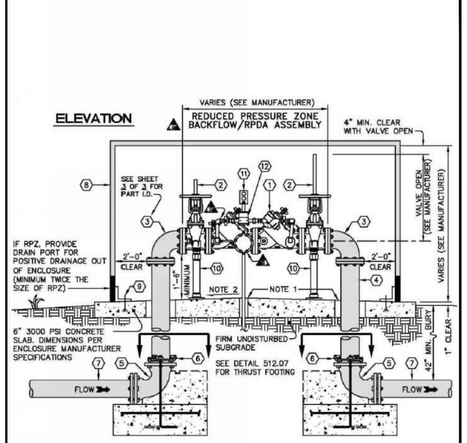
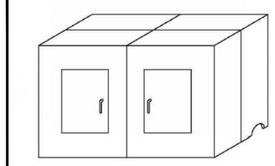
3/4" SINGLE & 1" DUAL SERVICE INSTALLATION — SCALE: Not To Scale — DETAIL # 515.01 — REVISION DATE: June 28, 2012 — SHEET # 1 of 2



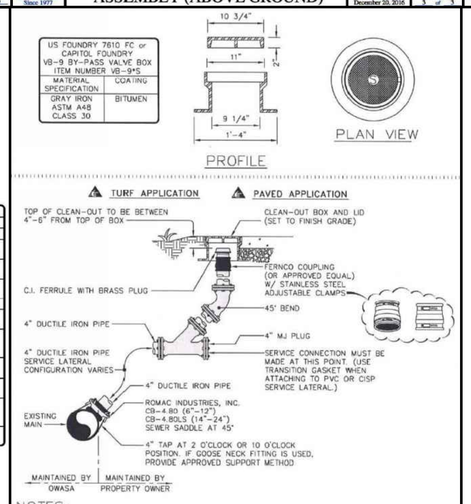


TYPICAL BOX

#	PART	MANUFACTURER MODEL / Cat. No.
1	BACKFLOW ASSEMBLY	USC & ASSE APPROVED
2	OS&Y GATE VALVE WITH RESILIENT SEATS	TO BE APPROVED BY OWASA
3	90° DIP FLANGE x FLANGE ELBOW	AMERICAN CAST IRON PIPE, GRIFFIN PIPE CO., UNION–TYLER PIPE CO., or U.S. PIPE & FOUNDRY
4	DIP FLANGE x PE PIPE (VERIFY LENGTH)	AMERICAN CAST IRON PIPE, GRIFFIN PIPE CO., U.S. PIPE & FOUNDRY
5	90° DIP MJ x MJ ELBOW	AMERICAN CAST IRON PIPE, GRIFFIN PIPE CO., UNION–TYLER PIPE CO., or U.S. PIPE & FOUNDRY
6	WEDGE ACTION RESTRAINER GLAND JOINT RESTRAINT	EBBA IRON SALES, INC., FORD
7	3" THRU 10" DIP	AMERICAN CAST IRON PIPE, GRIFFIN PIPE CO., UNION–TYLER PIPE CO., or U.S. PIPE & FOUNDRY
8	INSULATED ENCLOSURE WITH LOCKING ACCESS DOORS AND HEATER (120 V, 1 PHASE, 60 HZ) VERIFY FITTINGS WILL FIT INSIDE BOX BEFORE ORDERING	HOTBOX / HB4E – HB10E (OR APPROVED EQUIVALENT)
9	STAINLESS STEEL EXPANSION ANCHOR BOLTS PER BOX MANUFACTURER RECOMMENDED SIZE & SPACING	----
10	ADJUSTABLE PIPE SUPPORTS HOT DIP GALVANIZED	SHOP FABRICATED AND HOT DIP GALVANIZED OR "STANDON" MODEL S92 SADDLE SUPPORT
11	PROVIDE 120V RECEPTACLE ON GFCI NEAR PIPE RISER, SET MINIMUM 12" ABOVE DISCHARGE POINT OF RPZ. (AS APPLICABLE)	UL STD. 943–NEMA 3R.
12	METER WITH ERT	PURCHASE FROM OWASA

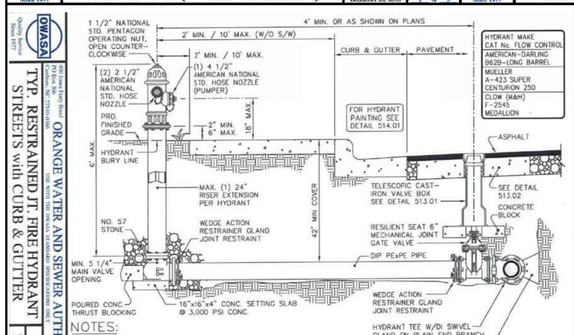
NOTES:
1. Provide minimum 3" annular clearance around all DIP risers and 1" around electrical conduit.
2. Slope floor to drain to ports at both ends. Ensure positive surface grade away from enclosure.
3. If metal enclosure issued, mount ERT on outside of box.

OWASA — 400 Jones Ferry Road, PO Box 366, Carrboro, NC 27510-0366 — ORANGE WATER AND SEWER AUTHORITY — USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY — Voice (919) 968-4421, FAX (919) 968-4464, www.owasa.org
2 1/2" to 10" RPZ, RPDA ASSEMBLY (ABOVE GROUND) — SCALE: Not To Scale — DETAIL # 515.10 — REVISION DATE: December 20, 2016 — SHEET # 3 of 3



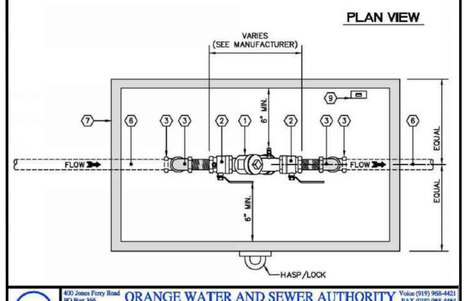
NOTES:
1. This detail depicts a typical layout. Variations may be approved.
2. Service saddles may be used only on existing sewer mains. Tees / Wyes shall be used for new construction.

OWASA — 400 Jones Ferry Road, PO Box 366, Carrboro, NC 27510-0366 — ORANGE WATER AND SEWER AUTHORITY — USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY — Voice (919) 968-4421, FAX (919) 968-4464, www.owasa.org
4" SEWER TAP and STUB-OUT PAVED APPLICATION CLEAN OUT — SCALE: Not To Scale — DETAIL # 534.01 — REVISION DATE: April 13, 2007 — SHEET # 1 of 1

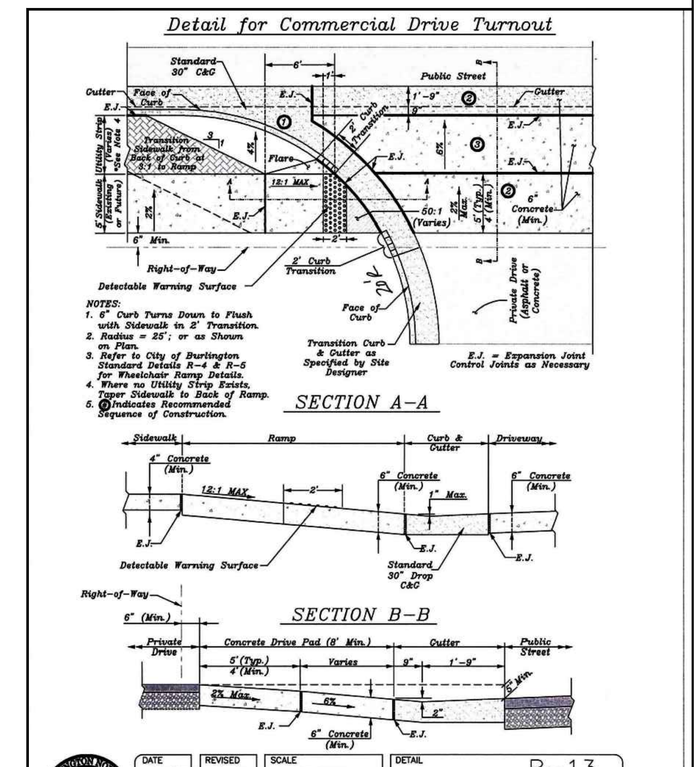


NOTES:
1. Omitted
2. Hydrants to be placed with pumper nozzle facing the street or as otherwise directed by OWASA.
3. When valve box is placed outside of pavement, provide concrete stabilization pad. (detail 513.02)
4. Omitted
5. Where hydrant is set behind guardrail, centerline of pumper nozzle to be a minimum of 12" and a maximum of 18" above top of guardrail. Center of hydrant to be a minimum of 3 feet from guardrail.
6. Fire hydrant to be oiled & greased and cap to be sprayed (Non-petroleum - based) after installation.
7. Do not locate hydrants in sidewalks or block pedestrian flow.

OWASA — 400 Jones Ferry Road, PO Box 366, Carrboro, NC 27510-0366 — ORANGE WATER AND SEWER AUTHORITY — USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY — Voice (919) 968-4421, FAX (919) 968-4464, www.owasa.org
TYP. RESTRAINED JT. FIRE HYDRANT STREETS with CURB & GUTTER — SCALE: Not To Scale — DETAIL # 514.03 — REVISION DATE: August 13, 2003 — SHEET # 2 of 2



OWASA — 400 Jones Ferry Road, PO Box 366, Carrboro, NC 27510-0366 — ORANGE WATER AND SEWER AUTHORITY — USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY — Voice (919) 968-4421, FAX (919) 968-4464, www.owasa.org
3/4" to 2" RPZ ASSEMBLY (ABOVE GROUND) — SCALE: Not To Scale — DETAIL # 515.06 — REVISION DATE: December 20, 2016 — SHEET # 3 of 3



DATE	REVISED	SCALE	DETAIL
1/31/07	7/17/08	NOT TO SCALE	R–13

COMMERCIAL DRIVE TURNOUT
CITY OF BURLINGTON, NORTH CAROLINA
ENGINEERING DEPARTMENT

2-12-20 Detail Check PPP

Phillip N. Post, PE, PLS
(919) 818-7862
philip.n.post@gmail.com
PO Box 4912
Chapel Hill, NC 27515
PHILIP POST ENGINEERING
FIRM: C-347

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CHRIST COMMUNITY CHURCH
141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-39-9116 AND 9799-49-0235

UTILITY AND DRIVEWAY ENTRANCE DETAILS

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

#	DATE	BY
6	2/26/2020	DC
5	2-9-2020	#DC
4	1-27-2020	DC
3	1-17-2020	DC
2	12-27-2019	DC
1	11-17-2019	DC
NO.	REVISIONS	BY

NCDOT AND TOWN COMMENTS
TOWN COMMENTS
PROPERTY LINE SWAP
SUBMITTAL #2 COMMENTS
OWASA, 11/13/2019 COMMENTS
SUBMITTAL #1 COMMENTS

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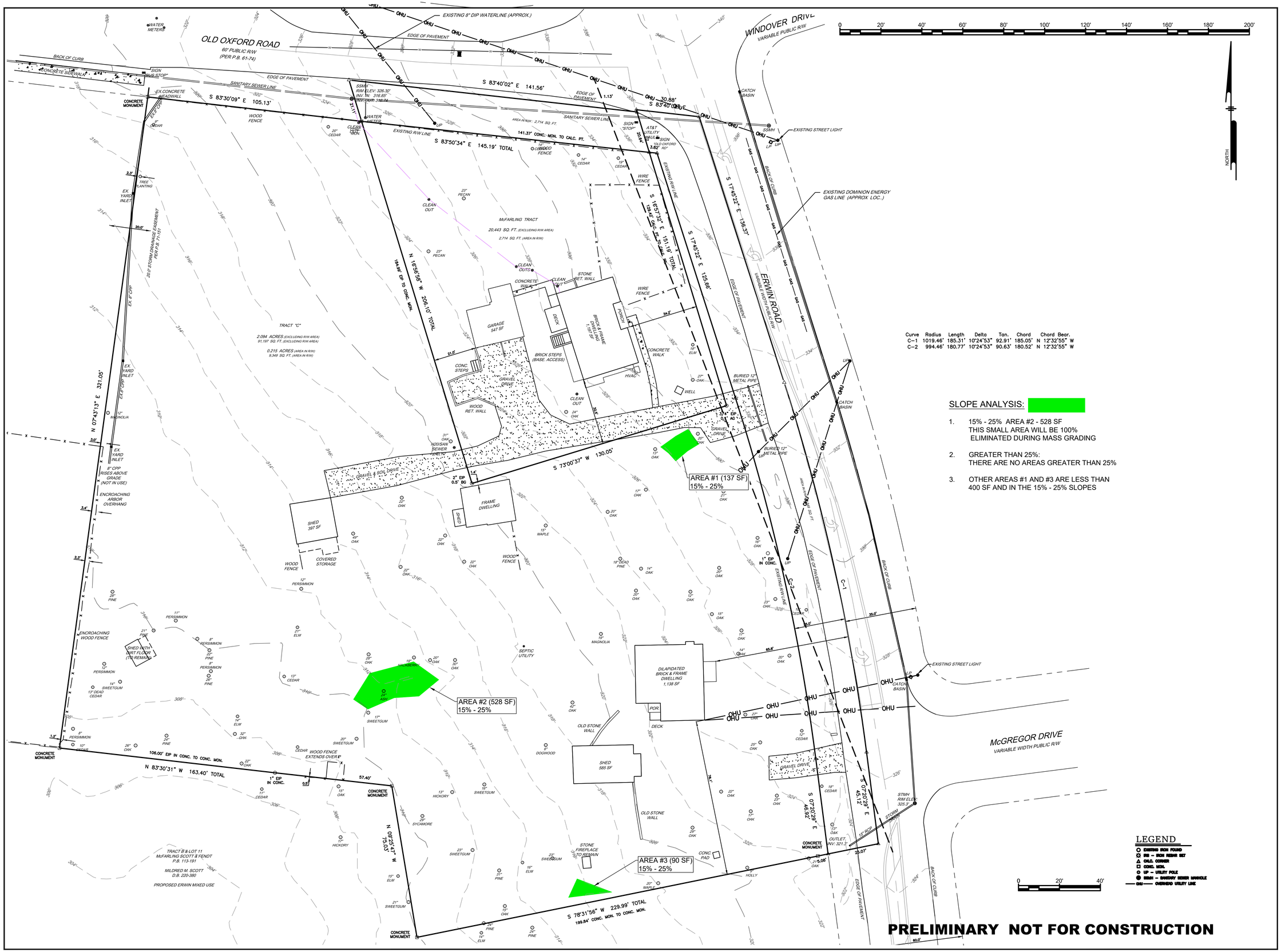
PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	-
DRAWN BY	DC
APPROVED BY	PP

C012

SHEET 13 OF 16



Curve	Radius	Length	Delta	Tan.	Chord	Chord Bear.
C-1	1019.46'	185.31'	10°24'53"	92.91'	185.05'	N 12°32'55" W
C-2	994.46'	180.77'	10°24'53"	90.63'	180.52'	N 12°32'55" W

SLOPE ANALYSIS:

1. 15% - 25% AREA #2 - 528 SF
   THIS SMALL AREA WILL BE 100% ELIMINATED DURING MASS GRADING
2. GREATER THAN 25%:
   THERE ARE NO AREAS GREATER THAN 25%
3. OTHER AREAS #1 AND #3 ARE LESS THAN 400 SF AND IN THE 15% - 25% SLOPES

LEGEND

- EXISTING IRON FOUND
- IRS — IRON RESAW SET
- CALC. CORNER
- CONC. MON.
- UP — UTILITY POLE
- SSMH — SANITARY SEWER MANHOLE
- OHU — OVERHEAD UTILITY LINE

0 20' 40'

PRELIMINARY NOT FOR CONSTRUCTION

Phillip N. Post, PE, PLS
(919) 818-7862
phillip.n.post@gmail.com
PO Box 4912
Chapel Hill, NC 27515
PHILIP POST ENGINEERING
FIRM: C-347

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CHRIST COMMUNITY CHURCH

141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-39-9116 AND 9799-49-0235

SLOPE ANALYSIS PLAN

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

#	DATE	REVISIONS	BY
6	2/26/2020	NCDOT AND TOWN COMMENTS	DC
5	2-9-2020	TOWN COMMENTS	#DC
4	1-27-2020	PROPERTY LINE SWAP	DC
3	1-17-2020	SUBMITTAL #2 COMMENTS	DC
2	12-27-2019	OWASA 11/13/2019 COMMENTS	DC
1	11-17-2019	SUBMITTAL #1 COMMENTS	DC

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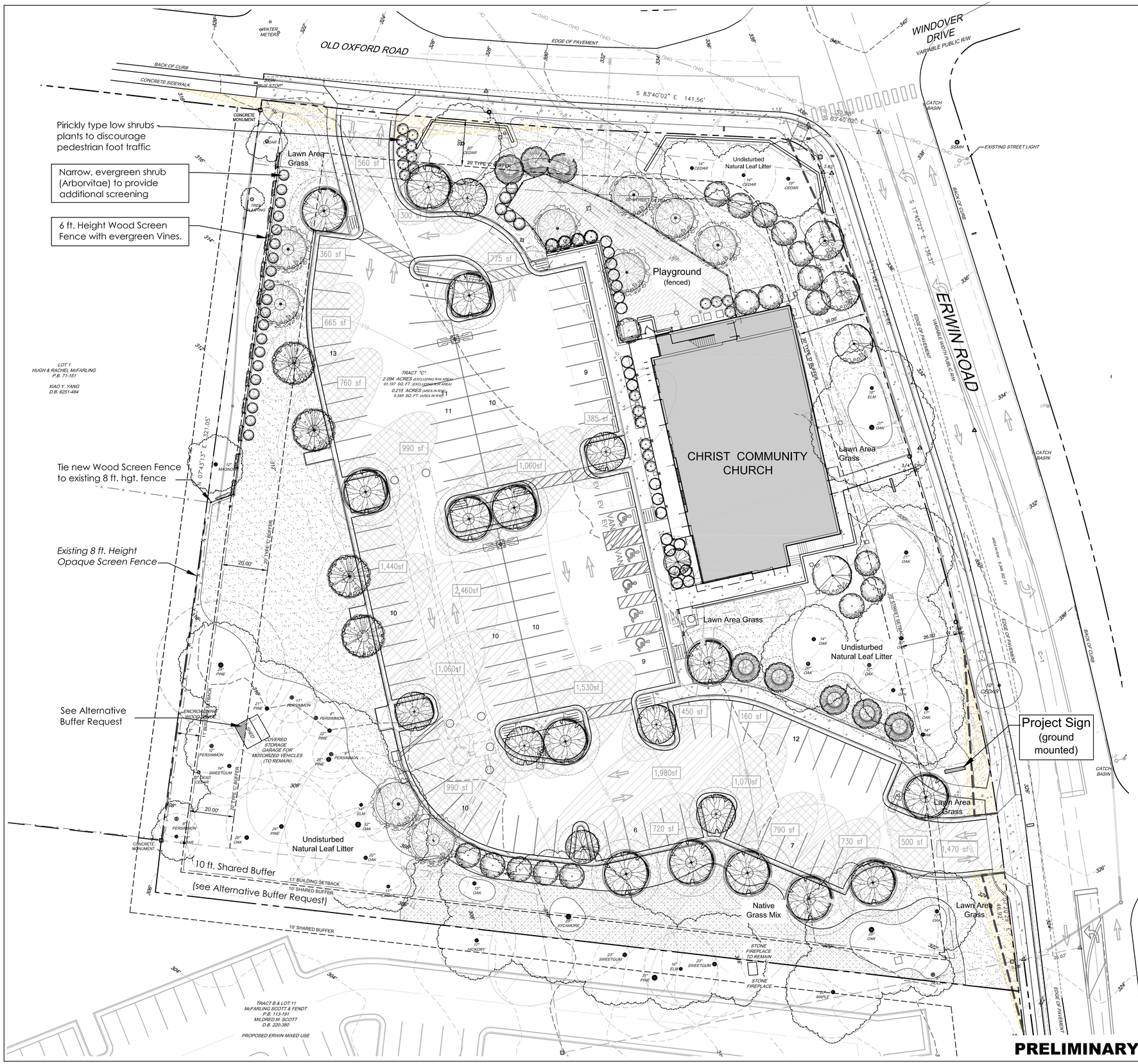
PROJECT	401801
DATE	8/28/2019
DRAWING SCALE	1" = 20'
DRAWN BY	DC
APPROVED BY	PP

C013

SHEET 14 OF 16

C:\ACAD Folders\Projects\CCCC013.dwg PLOTTED: 2/26/2020 4:58 PM, BY: Donald Chilly PLOTSTYLE: pipe.ctb PROJECT STATUS: ---



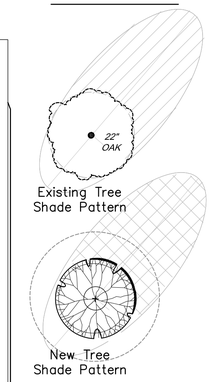
PRELIMINARY NOT FOR CONSTRUCTION

Swanson + Associates, pa
landscape architect

100 East Carr Street
Carrboro, NC 27510
david@swansonlandscapearchitecture.com
919.929.9000

SHADE TREE REQUIREMENTS/PROVIDED:

TOTAL PARKING AREA:	34,825 SF
TOTAL SHADE TREE REQUIRED: 35% OF PARKING AREA	12,188 SF
TOTAL ENTRY DRIVE PAVED AREA:	4,070 SF
TOTAL SHADE TREE REQUIRED: 35% OF SERVICE PAVED AREA	1,425 SF
TOTAL PAVED AREA: (excluding entrance drive)	38,895 SF
Number of shade trees required: 38,895 sf/2000 sf =	19 trees
TOTAL SHADE TREE REQUIRED: 35% OF PAVED AREA	13,613 SF
TOTAL SHADE TREE PROVIDED: 35%+ of Parking & Entry Area	21,215 SF
new trees shade area =	15,305 sf
extg. trees shade area =	5,910 sf
(calculated as shown graphically)	
Number of shade trees provided	27 trees
27 trees x's 2000 sf / 2 = 27,000 SF	
54,000 SF	



SHADE TREE DIAGRAM

LEGEND for TREE - SHRUB - GRASS PLANTING

OUTER DASHED CIRCLE REPRESENTS A MATURE SIZED CANOPY WIDTH PLANT BASED ON EXPECTATIONS. ACTUAL GROWING CONDITIONS WILL VARY DEPENDING ON SOIL CONDITIONS, AMOUNT OF WET/DRY CONDITIONS, EXISTING TREE CANOPY COVERAGE AND SUNLIGHT, ROOT COMPETITION AND OTHER ENVIRONMENTAL FACTORS.

- Pin Oak — Quercus palustris
- Swamp Chestnut Oak — Quercus michauxii
- Bald Cypress — Taxodium distichum
- Red Maple — Acer rubrum
- Persimmon — Diospyros virginiana
- Southern Magnolia — Magnolia grandifora
- River Birch — Betula nigra
- Pecan — Carya illinoinensis
- Ginko — Ginkgo biloba
- Red Bud — Cercis canadensis
- Peggy Clarke Japanese Apricot — Prunus mume 'Peggy Clarke'
- Fringe Tree — Chionanthus virginicus
- Crape Myrtle Natchez Whte — Lagerstromia faurei 'Natchez'
- Chindo Viburnum — Viburnum awabuki "Chindo"
- Carolina Jasmine (Vine trained on fence) — Gelsemium sempervirens
- Tulip Poplar — Lirodendron tullipifera
- Black Gum — Nyssa sylvatica
- Chinese Pistache — Pistacia chinensis
- Red Cedar — Juniperus virginiana
- Loblolly Pine — Pinus taeda
- Greenleaf Holly — Ilex opaca 'Greenleaf'
- Nellie Stevens Holly — Ilex x Nellie R Stevens
- Arborvitae — Thuja occidentalis
- Carolina Cherry Laurel — Prunus caroliniana
- Hornbeam (Ironwood) — Caripinus caroliniana
- Flowering Quince — Chaenomelia speciosa
- Wax Myrtle — Myrica cerifera
- Winter Honeysuckle — Lonicera fragrantissima
- Grey Owl Juniper — Juniperus virginiana 'Grey Owl'
- Abelia grandifolia — Glossy Abelia
- Carissa Holly — Ilex cornuta 'Carissa'
- Tree Saucer (mulch ring - typ.)

GRASS PLANTING NOTES

Native Vegetation Stabilization Mix
Recommended application rate: 20-25 lbs. per acre

Species Common Name	Percent
Elymus virginicus Virginia wild rye	15
Tripsacum dactyloides Eastern gammagrass	13
Panicum virgatum Switchgrass	12
Agrostis perennans Autumn bentgrass	12
Carex vulpinoidea Fox sedge	10
Tridens flavus Purple top	10
Schizachyrium scoparium Little bluestem	8
Coreopsis lanceolata Lance leaf tickseed	5
Sorghastrum nutans Indian grass	5
Elymus hystrix Bottlebrush grass	5
Festuca ovina var. duriuscala Hard fescue	4
Rudbeckia hirta NC Ecotype Blackeyed susan	1
	100

- Mulch Area
- Lawn Area Grass
- Native Grass Mix

Source for Native Seed Mix
https://www.mellowmarshfarms

Phillip N. Post, PE, PLS
(919) 818-7862
phillip.n.post@gmail.com
PO Box 4912
Chapel Hill, NC 27515
PHILIP POST ENGINEERING
FIRM: C-347

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND ARCHITECT/ENGINEER PRIOR TO CONSTRUCTION. DISCREPANCIES BEFORE PROCEEDING WITH WORK

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 461 DAVID T SWANSON
David T Swanson
July 18, 2019
NORTH CAROLINA LANDSCAPE ARCHITECTURE C-168 SWANSON AND ASSOCIATES, P.A.

CHRIST COMMUNITY CHURCH

141 ERWIN ROAD, CHAPEL HILL, N.C. 27514
PIN# 9799-39-9116 AND 9799-49-0235

LANDSCAPE PLAN AND DETAILS

APPLICANT:
CHRIST COMMUNITY CHURCH
1526 E. FRANKLIN STREET, SUITE 201
CHAPEL HILL, N.C. 27514

NO.	DATE	REVISIONS	BY
#	03-05-20	ADD SCREENING PLANTS	DS
#	02-03-20	SUBMITTAL #2 TOWN COMMENTS	DS
#	11-17-19	SUBMITTAL #1 TOWN COMMENTS	DS

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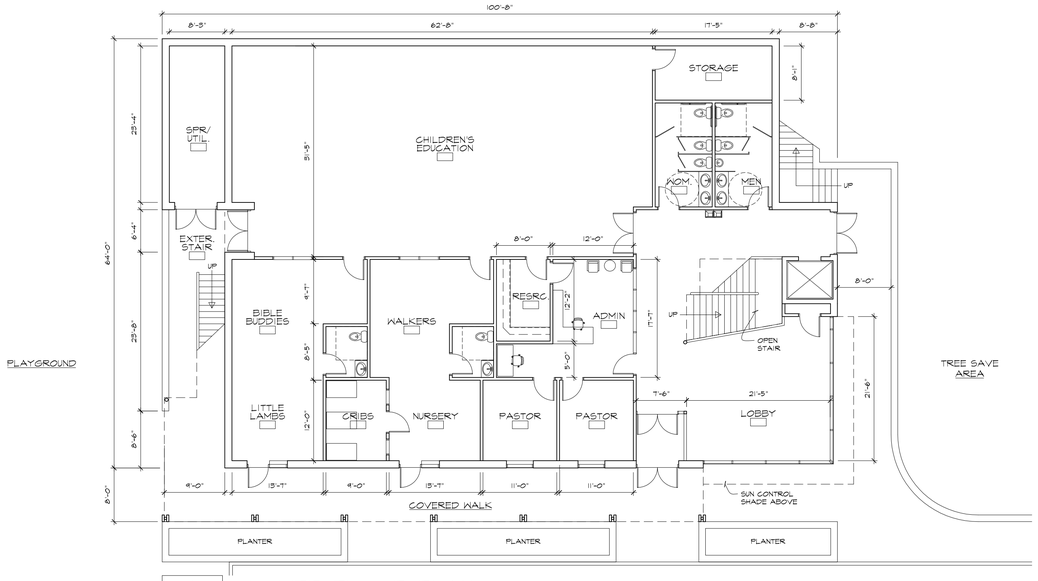
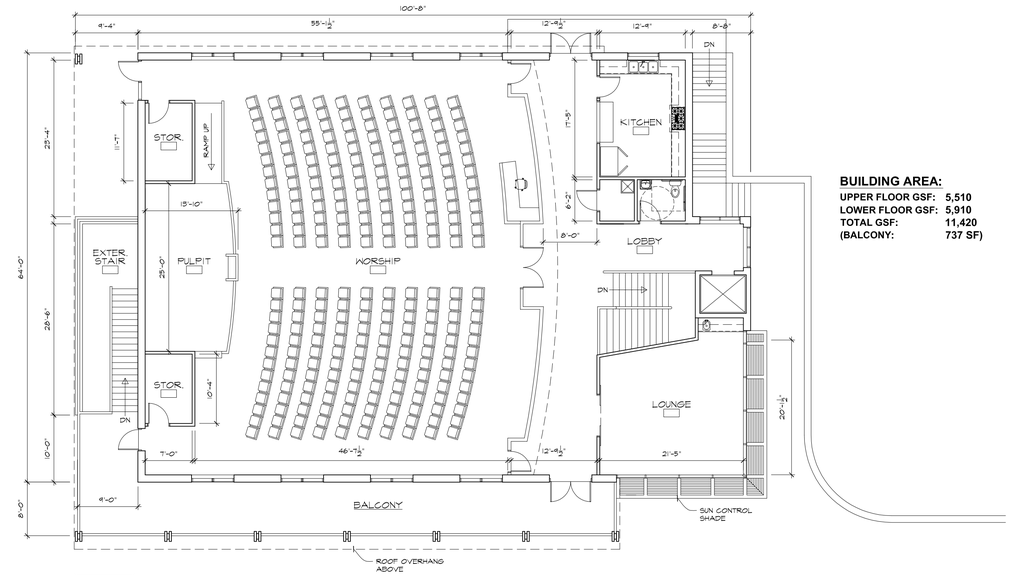
PROJECT	401801
DATE	07/18/2019
DRAWING SCALE	1" = 20'
DRAWN BY	DD
APPROVED BY	PP

L 001

SHEET 15 OF 16



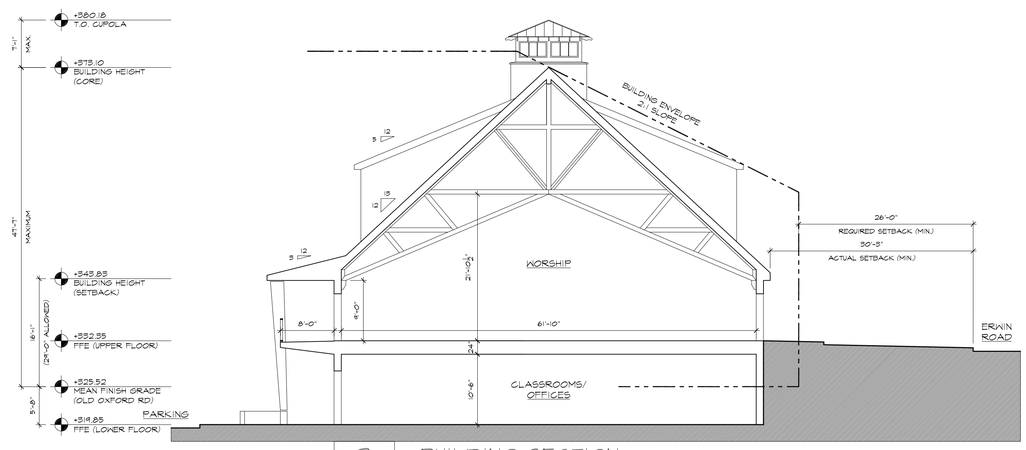
1 A-003 LOWER FLOOR PLAN
3/32" = 1'-0"



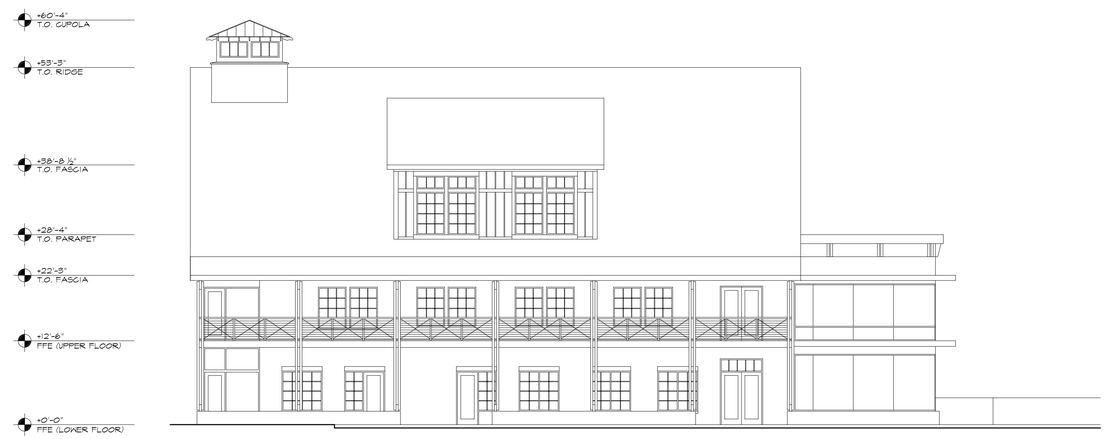
BUILDING AREA:

UPPER FLOOR GSF:	5,510
LOWER FLOOR GSF:	5,910
TOTAL GSF:	11,420
(BALCONY:	737 SF)

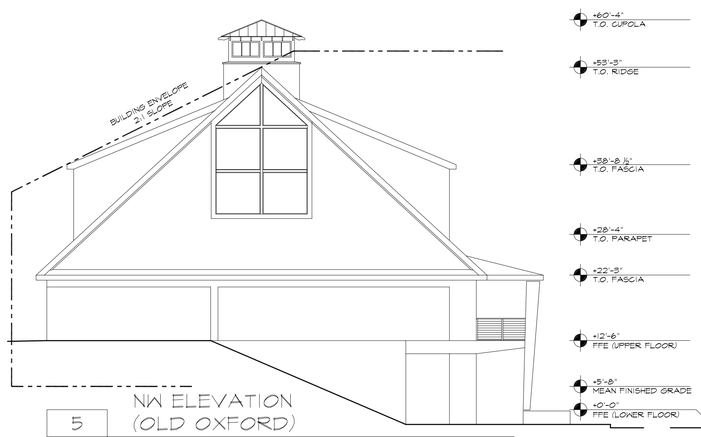
2 A-003 UPPER FLOOR PLAN
3/32" = 1'-0"



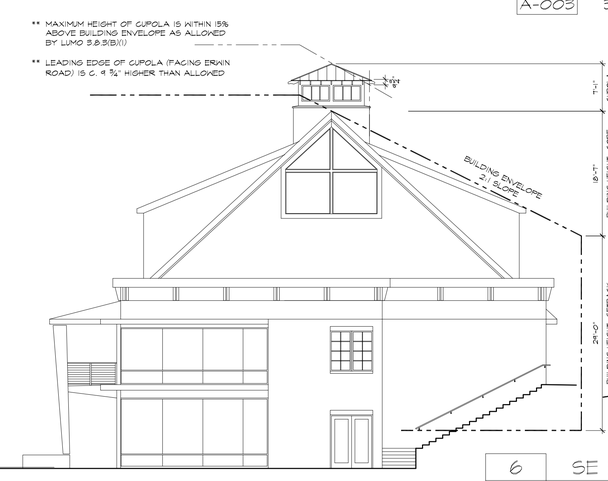
3 A-003 BUILDING SECTION
3/32" = 1'-0"



4 A-003 NE ELEVATION (PARKING)
3/32" = 1'-0"



5 A-003 NW ELEVATION (OLD OXFORD)
3/32" = 1'-0"



6 A-003 SE ELEVATION
3/32" = 1'-0"

7 A-003 SW ELEVATION (ERWIN ROAD)
3/32" = 1'-0"

309-A West Geer Street
Durham, NC 27701
USA
t: (919) 949-4030

Bo Harrison, Architect
e: harrisonarchpa@gmail.com

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prepared for
SUP SUBMITTAL

project name
CHRIST COMMUNITY CHURCH

141 ERWIN ROAD
CHAPEL HILL, NC 27514

project number
201801-CCC

drawing title
BLDG PLANS
BLDG SECTION
BLDG ELEVATIONS

drawing scale
AS NOTED

orientation
N

revision history

11/23/2018	CONCEPT PLAN
09/06/2019	SUP SUBMITTAL
12/12/2019	SUP SUBMITTAL 1st REVISION
02/05/2020	SUP SUBMITTAL 2nd REVISION

Mark	Date	Description

Issue/Revision
CAD File Name
Drawn By
Checked By
Plot Date:
Reviewed by
Designed by
Submitted By
Drawing Code

issue date
02/05/2020

sheet index
A 003