

CHARLOTTE

FINAL APPROVAL

ENGINEERING
PCO / DETENTION / DRAINAGE PLAN

EROSION CONTROL

URBAN FORESTRY
TREE ORDINANCE

CDOT

NOTE: SCHEDULE PRE-CONSTRUCTION MEETING AT LEAST 48 HRS. PRIOR TO ANY LAND DISTURBING ACTIVITY USING THE ONLINE FORM AT <http://development.charmeck.org>

APPROVED
By Emily Chien at 10:07 am, Aug 09, 2017

APPROVED

APPROVED Kelly Robertson

APPROVED Carlos Alzate

APPROVED FOR CONSTRUCTION
CHARLOTTE-MECKLENBURG PLANNING DEPARTMENT
By: Joshua Weaver 8-10-2017 4 of 9

SITE PREPARATION, GRADING, AND STORMWATER NOTES:

1. LAND DEVELOPMENT ENGINEER TO BE GIVEN 24 HOURS NOTICE PRIOR TO START OF CONSTRUCTION.
2. REFER TO EROSION CONTROL DOCUMENTS FOR ALL TREE PROTECTION FENCE LOCATIONS AND INSTALLATION PROCEDURES BEFORE GRADING/CONSTRUCTION BEGINS. CALL FOR INSPECTION OF TREE PROTECTION BARRICADES NO SOIL DISTURBANCE OR COMPACTION. CONSTRUCTION MATERIALS, TRAFFIC, BURNING PITS, TRENCHING, OR OTHER LAND DISTURBING ACTIVITY ALLOWED IN THE TREE PROTECTION ZONE.
3. SUB-CONTRACTOR TO GRADE SITE TO A TOLERANCE OF ± 0.10 FEET BALANCED OF SUBGRADE.
4. IN ORDER TO ENSURE PROPER DRAINAGE, REFER TO SITE PLAN DOCUMENTS AND DETAILS FOR CURB SPECIFICATIONS.
5. APPROVAL OF THIS PLAN IS NOT AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, WRITTEN PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS.
6. REFER TO STORMWATER DOCUMENTS FOR ALL STORM DRAINAGE.
7. BOUNDARY AND TOPOGRAPHIC INFORMATION WERE TAKEN FROM A SURVEY PERFORMED BY LSI (704) 337-8329.
8. NEW FINISHED CONTOURS SHOWN ARE TOP OF PAVING IN AREAS TO RECEIVE PAVEMENT AND TOP OF TOPSOIL IN AREAS TO BE SEEDS.
9. DIMENSIONS ON BUILDINGS ARE FOR GRADING PURPOSES ONLY AND ARE NOT TO BE USED TO LAYOUT FOOTINGS.
10. GRADING SUB-CONTRACTOR SHALL NOTIFY AND COOPERATE WITH ALL UTILITY COMPANIES OR FIRMS HAVING FACILITIES ON OR ADJACENT TO THE SITE BEFORE DISTURBING, ALTERING, REMOVING, RELOCATING, ADJUSTING OR CONNECTING TO SAID FACILITIES. SUB-CONTRACTORS SHALL PAY ALL COSTS IN CONNECTION WITH THE ALTERATION OF OR RELOCATION OF THE FACILITIES. SUB-CONTRACTORS SHALL MAINTAIN OR LOWER TOPS OF EXISTING MANHOLES AS REQUIRED TO MATCH FINISHED GRADES.
11. GRADING SUB-CONTRACTOR SHALL COOPERATE AND WORK WITH ALL OTHER SUB-CONTRACTORS PERFORMING WORK ON THIS PROJECT TO INSURE PROPER AND TIMELY COMPLETION OF THIS PROJECT.
12. THE GRADING SUB-CONTRACTOR SHALL USE WHATEVER MEASURES ARE REQUIRED TO PREVENT SILT AND CONSTRUCTION DEBRIS FROM FLOWING ONTO ADJACENT PROPERTIES. SUB-CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE AND FEDERAL EROSION SEDIMENT AND SILTATION ORDINANCES. SUB-CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL STRUCTURES UPON COMPLETION OF PERMANENT DRAINAGE FACILITIES AND NOT BEFORE ALL AREAS DRAINING INTO THESE STRUCTURES ARE SUFFICIENTLY STABILIZED.
13. FOR ANY WORK ON THE STATE RIGHT-OF-WAY, THE GRADING SUB-CONTRACTOR SHALL:
 - 13.1. NOT STORE MATERIAL, EXCESS DIRT OR EQUIPMENT IN THE RIGHT-OF-WAY IN CASE OF MULTILANE HIGHWAYS. THE PAVEMENT SHALL BE KEPT FREE FROM ANY MUD OR EXCAVATION WASTE FROM TRUCKS OR OTHER EQUIPMENT. ON COMPLETION OF THE WORK ALL EXCESS MATERIAL SHALL BE REMOVED FROM THE RIGHT-OF-WAY.
 - 13.2. PROVIDE ALL NECESSARY AND ADEQUATE SAFETY PRECAUTIONS SUCH AS SIGNS, FLAGS, LIGHT BARRICADES AND FLAGMEN AS REQUIRED BY THE LOCAL AUTHORITIES AND IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. THE GRADING SUB-CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND HOLD HARMLESS THE CITY OF CHARLOTTE, THE STATE OF NORTH CAROLINA, THE ARCHITECT/ENGINEER, AND D. R. HORTON FROM ANY CLAIMS FOR DAMAGE DONE TO EXISTING PRIVATE PROPERTY, PUBLIC UTILITIES, OR TO THE TRAVELING PUBLIC.
 - 13.3. COMPLETE WORK TO THE SATISFACTION OF THE CITY OF CHARLOTTE PUBLIC WORKS DEPARTMENT AND OBTAIN A LETTER FROM THE DEPARTMENT STATING THAT THE WORK IS ACCEPTABLE.
14. GRADING SUB-CONTRACTOR SHALL TAKE ALL AVAILABLE PRECAUTIONS TO CONTROL DUST. SUB-CONTRACTOR SHALL CONTROL DUST BY SPRINKLING, OR BY OTHER METHODS AS DIRECTED BY ENGINEER AND/OR D. R. HORTON'S REPRESENTATIVE AT NO ADDITIONAL COST TO D. R. HORTON.
15. GRADING SUB-CONTRACTOR TO COMPLY WITH ALL STATE AND LOCAL SEDIMENT CONTROL AND AIR POLLUTION ORDINANCES OR RULES.
16. IMPORT SUFFICIENT MATERIAL TO COMPLETE WORK AT NO ADDITIONAL COST, IN THE EVENT OF A SHORTAGE OF STRUCTURAL FILL.
17. BEFORE ANY MACHINE WORK IS DONE, SUB-CONTRACTOR SHALL STAKE OUT AND MARK THE ITEMS ESTABLISHED BY THE SITE PLAN. CONTROL SHALL BE PRESERVED AT ALL TIMES DURING THE COURSE OF THE PROJECT. LACK OF PROPER WORKING POINTS AND GRADE STAKES MAY REQUIRE ACQUISITION OF OPERATIONS UNTIL SUCH POINTS AND GRADES HAVE BEEN PLACED TO THE HOME'S SATISFACTION. ARCHITECT MUST APPROVE STAKED ITEMS PRIOR TO CONSTRUCTION.
18. AS-BUILT DRAWINGS AND PLANS OF THE STORM DRAINAGE SYSTEM, INCLUDING DESIGNED DITCHES, MUST BE SUBMITTED PRIOR TO FINAL INSPECTION TO THE CITY/COUNTY ENGINEERING DEPARTMENT IN ACCORDANCE WITH THE CITY/COUNTY SUBDIVISION ORDINANCE.
19. SUB-CONTRACTOR TO COORDINATE ALL WORK WITH OTHER UTILITY INSTALLATIONS NOT COVERED IN THESE PLANS (ELECTRIC, TELEPHONE, GAS, CABLE, ETC.) AND ALLOW FOR THEIR OPERATIONS AND CONSTRUCTION TO BE PERFORMED.
20. SUB-CONTRACTOR SHALL REPAIR OR REPLACE IN-KIND ANY DAMAGE THAT OCCURS AS RESULT OF HIS WORK.
21. ALL LINEAR FOOTAGE FOR ALL UTILITY PIPES ARE APPROXIMATE. ACTUAL INSTALLED QUANTITIES MAY VARY.
22. STORM SEWER LEAD-INS TO BUILDINGS SHALL NOT BE INSTALLED UNTIL BUILDING PLANS ARE COMPLETED AND LOCATIONS ESTABLISHED ON THE ARCHITECTURAL PLANS. LEAD-INS MAY CHANGE 15' HORIZONTALLY AND 3' VERTICALLY PRIOR TO INSTALLATION AT NO ADDITIONAL COST TO D. R. HORTON. SUB-CONTRACTOR SHALL REQUEST AND RECEIVE WRITTEN APPROVAL FROM PRIME SUB-CONTRACTOR PRIOR TO INSTALLATION OF LEAD-INS. SUB-CONTRACTOR SHALL COORDINATE LOCATIONS, SIZE AND INVERT ELEVATIONS OF STORM SEWERS WITH APPROVED BUILDING PLUMBING PLANS.
23. ALL CURB INLET ELEVATIONS IN PLAN AND PROFILE DENOTE THE CENTER OF GRADE (RM) ELEVATION.
24. ALL PIPE LENGTHS ARE MEASURED CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
25. CATCH BASIN RM ELEVATIONS ARE GIVEN TO CENTER OF GRADE. YARD INLETS AT FINISHED GRADE.
26. SEE SHEET C-4.3 TO C-4.8 FOR STORM SEWER GRADES AND INVERT ELEVATIONS.
27. SEE CUMULATIVE PLANS FOR ADDITIONAL INFORMATION.
28. RM ELEVATIONS GIVEN ON THESE PLANS ARE APPROXIMATE AND ARE FOR INFORMATIONAL PURPOSES ONLY. ACTUAL RM ELEVATIONS SHALL BE DETERMINED BY CONTRACTOR AND ADJUSTED TO MATCH FIELD CONDITIONS.
29. COORDINATE ALL CURB AND STREET GRADES AT INTERSECTIONS WITH INSPECTOR.
30. APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES.
31. IN ORDER TO ENSURE PROPER DRAINAGE, KEEP A MINIMUM OF 1.00% SLOPE ON THE CURB.
32. CURB AND GUTTER SHOWN ON PLANS MAY BE ADJUSTED BASED UPON FIELD STAKING BY CITY ENGINEER.
33. ASSOCIATED STORM DRAINAGE MAY ALSO REQUIRE MODIFICATION BASED UPON FIELD CONDITIONS.
34. THE PURPOSE OF THE STORM DRAINAGE EASEMENT IS TO PROVIDE STORM WATER CONVEYANCE AND ANY STRUCTURES AND/OR OBSTRUCTION TO STORM WATER FLOW IS PROHIBITED.
35. ALL DESIGN AND CONSTRUCTION METHODS SHALL BE DONE IN ACCORDANCE WITH THE CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS MANUAL AND NCDDOT.
36. ALL D (DROP) INLETS SHALL BE NCDDOT DROP INLET (STD. #840.14) WITH FRAME AND GRATE (STD. #840.16).
37. ALL C (CATCH) INLETS AND DCI (DOUBLE CATCH INLETS) SHALL BE NCDDOT CATCH BASIN (STD. #840.02) WITH FRAME GRATE AND HOOD (STD. #840.03).
38. ALL CONTOURS AND SPOT ELEVATIONS REFLECT FINISHED GRADES.
39. ALL ELEVATIONS ARE IN REFERENCE TO THE BENCHMARK WHICH MUST BE VERIFIED BY THE GENERAL CONTRACTOR PRIOR TO GROUND BREAKING.
40. REFER TO SOILS ENGINEERING RECOMMENDATION FOR DIRECTIONS ON FILL COMPACTION AND ANY STRUCTURAL CONSIDERATIONS.
41. PERMANENT CUT AND FILL SLOPES PLACED ON A SUITABLE FOUNDATION SHOULD BE CONSTRUCTED AT 2:1 (HORIZONTAL AND VERTICAL) OR FLATTER. PERMANENT SLOPES OF 3:1 SHOULD BE CONSTRUCTED WHERE MOWING IS DESIRABLE.
42. ALL SLOPES 3:1 OR STEEPER AND ALL PERMANENT DIVERSION DITCHES SHALL BE STABILIZED USING NORTH AMERICAN GREEN VMA "SC20" PERMANENT TURF REINFORCEMENT MAT INSTALLED PER MANUFACTURER'S SPECIFICATIONS USING STAPLE PATTERN "D".
43. SITE CONTRACTOR SHALL PROTECT ALL TREES AND VEGETATION INDICATED TO REMAIN, AND MAINTAIN ALL TREE PROTECTION BARRICADES.
44. THE PROPOSED CONTOURS SHOWN IN ROAD SECTIONS ARE FINISHED ELEVATIONS INCLUDING ASPHALT. REFER TO PAVEMENT CROSS-SECTION DATA TO ESTABLISH CORRECT SUB-BASE OR AGGREGATE BASE COURSE ELEVATIONS TO BE COMPLETED UNDER THIS CONTRACT.
45. LIMITS OF CLEARING SHOWN ARE BASED ON CUT AND FILL SLOPES OR OTHER GRADING REQUIREMENTS.
46. ANY GRADING BEYOND THE LIMITS OF CONSTRUCTION SHOWN IS SUBJECT TO A FINE.
47. ALL SLOPES MUST BE SEEDS AND MULCHED WITH IN 15 WORKING DAYS OR 30 CALENDAR DAYS, WHICHEVER IS SHORTER. ALL OTHER AREAS, IS WORKING DAYS OR 30 CALENDAR DAYS, WHICHEVER IS SHORTER. REFER TO EROSION CONTROL ORDINANCE FOR ADDITIONAL REQUIREMENTS.
48. CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES AS INDICATED ON EROSION CONTROL PLAN. NO DEVICE MAY BE REMOVED UNTIL SITE IS STABILIZED.
49. CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY WITH EXISTING CONTOURS.
50. SOIL TYPES: REFER TO CALCULATIONS.

DEVELOPMENT SUMMARY:

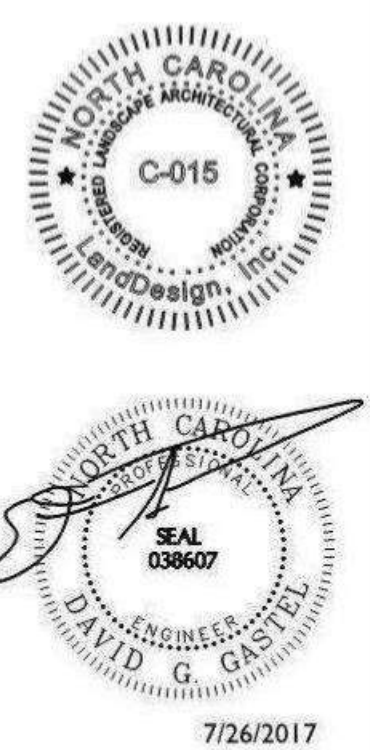
SITE ACREAGE:	± 122.72 ACRES
OVERALL:	
PARCEL A (PER ZONING):	
IMPERVIOUS AREA:	122.6 AC
MX-2 TOTAL ACREAGE:	12.3 AC
TOTAL IMPERVIOUS AREA:	26.9 AC
PERCENT IMPERVIOUS:	21.9%
OPEN SPACE:	
MX-2 TOTAL ACREAGE:	122.6 AC
10% REQUIRED:	12.3 AC
PROPOSED:	65.26 AC (53.2%)
TREE SAVE (PHASES 2, 3 & 5):	
MX-2 TOTAL ACREAGE:	122.6 AC
10% REQUIRED:	12.3 AC
PROVIDED THIS PHASE:	13.0 AC (10.6%)

LEGEND:

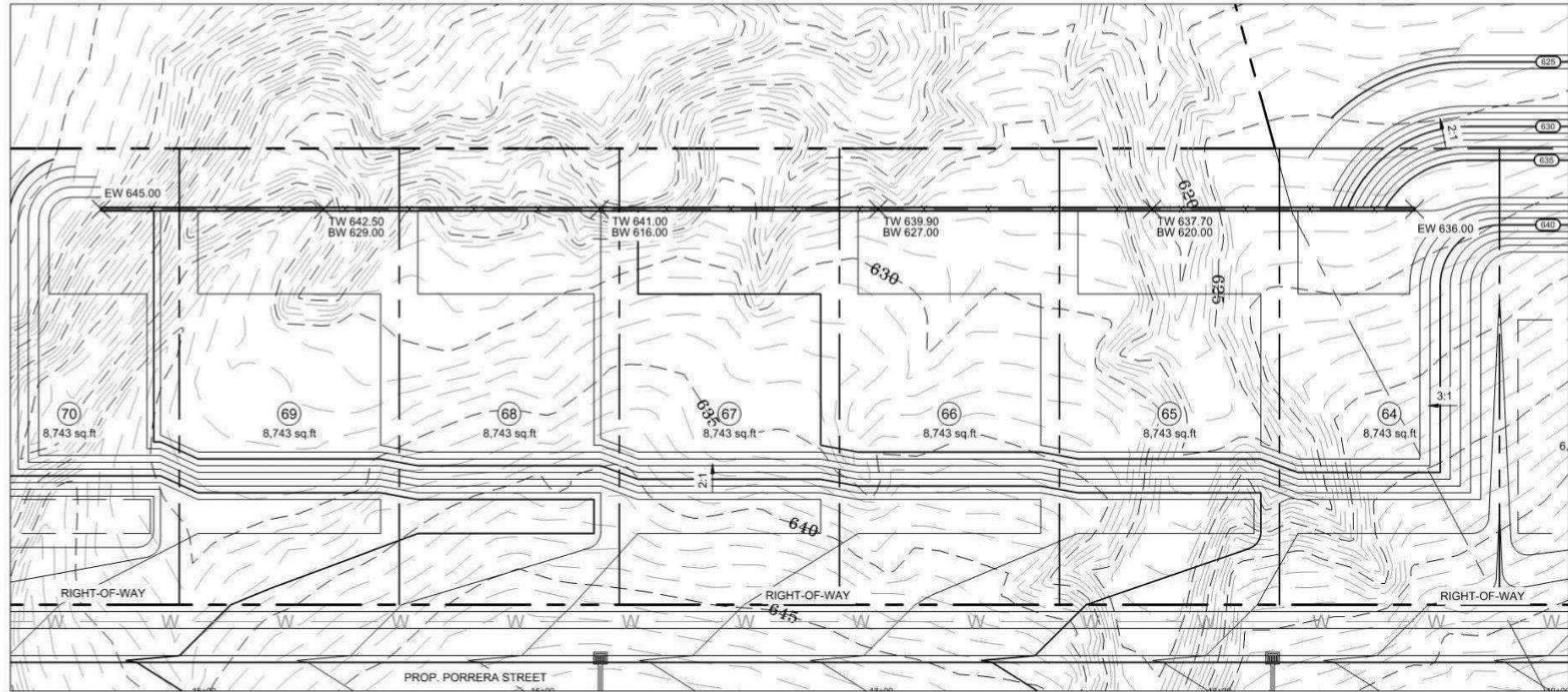
- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- PROPOSED TREE PROTECTION FENCE
- PROPOSED CONTOUR ELEVATION
- PROPOSED SPOT ELEVATION
- FLOW DIRECTION ARROW
- BUILDING PAD ELEVATION
- DRAINAGE EASEMENT
- STORM SEWER
- COMBINATION INLET (CI)
- DROP INLET (DI)
- STORM MANHOLE
- TREE SAVE AREA

The Vineyards at Lake Wylie - Phases 2, 3, & 5
City of Charlotte, Mecklenburg County, North Carolina
Turnstone Group, LLC
OVERALL STORM AND GRADING PLAN

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NC Eng. Firm License: C-0658



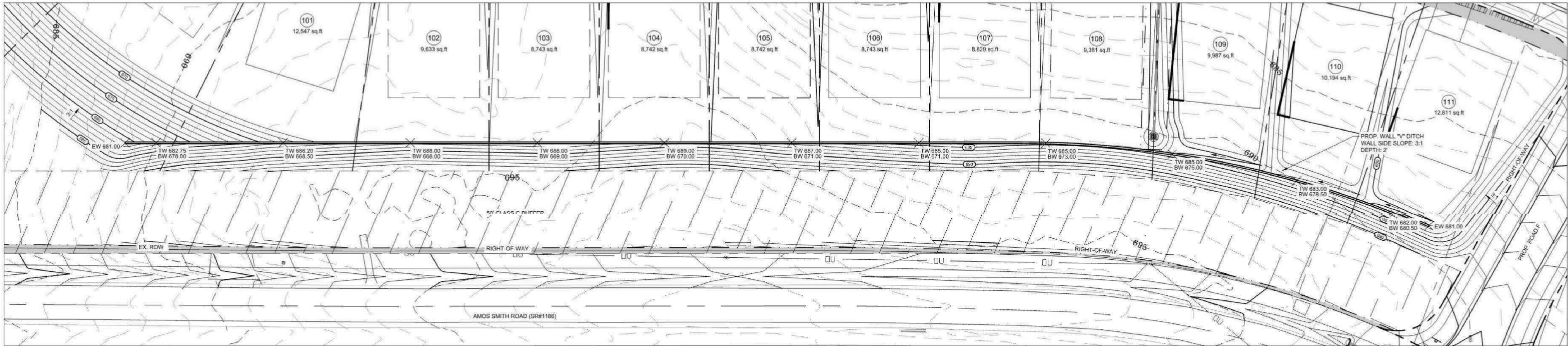
DATE: 7/26/2017
DESIGNED BY: DWK
DRAWN BY: DWK
CHECKED BY: DWK
C.C. BY: DWK
PROJECT #: 1013564
SHEET #: C-4.0



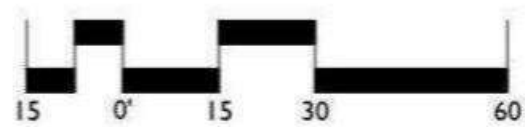
PROP. RETAINING WALL A



LEGEND:	
	EX. GRADE MAJOR
	EX. GRADE MINOR
	EX. ROW
	PROP. GRADE MAJOR
	PROP. GRADE MINOR
	PROP. WATER MAIN
	PROP. SANITARY SEWER
	PROP. STORM SEWER
	PROP. WATER VALVE
	PROP. WATER TEE
	PROP. FIRE HYDRANT
	PROP. SANITARY SEWER MANHOLE
	PROP. STORMWATER CURB INLET
	EX. SANITARY SEWER MANHOLE
	EX. STORM CURB INLET
	EX. STORM MANHOLE



PROP. RETAINING WALL B



The Vineyards at Lake Wylie - Phases 2, 3, & 5
City of Charlotte, Mecklenburg County, North Carolina
Turnstone Group, LLC
RETAINING WALL PLANS

DATE: 7/26/2017
DESIGNED BY: DWG
DRAWN BY: DWG
CHECKED BY: DWG
SCALE: 1" = 100'
PROJECT #: 101261
SHEET #:
C-4.1

REVISIONS:

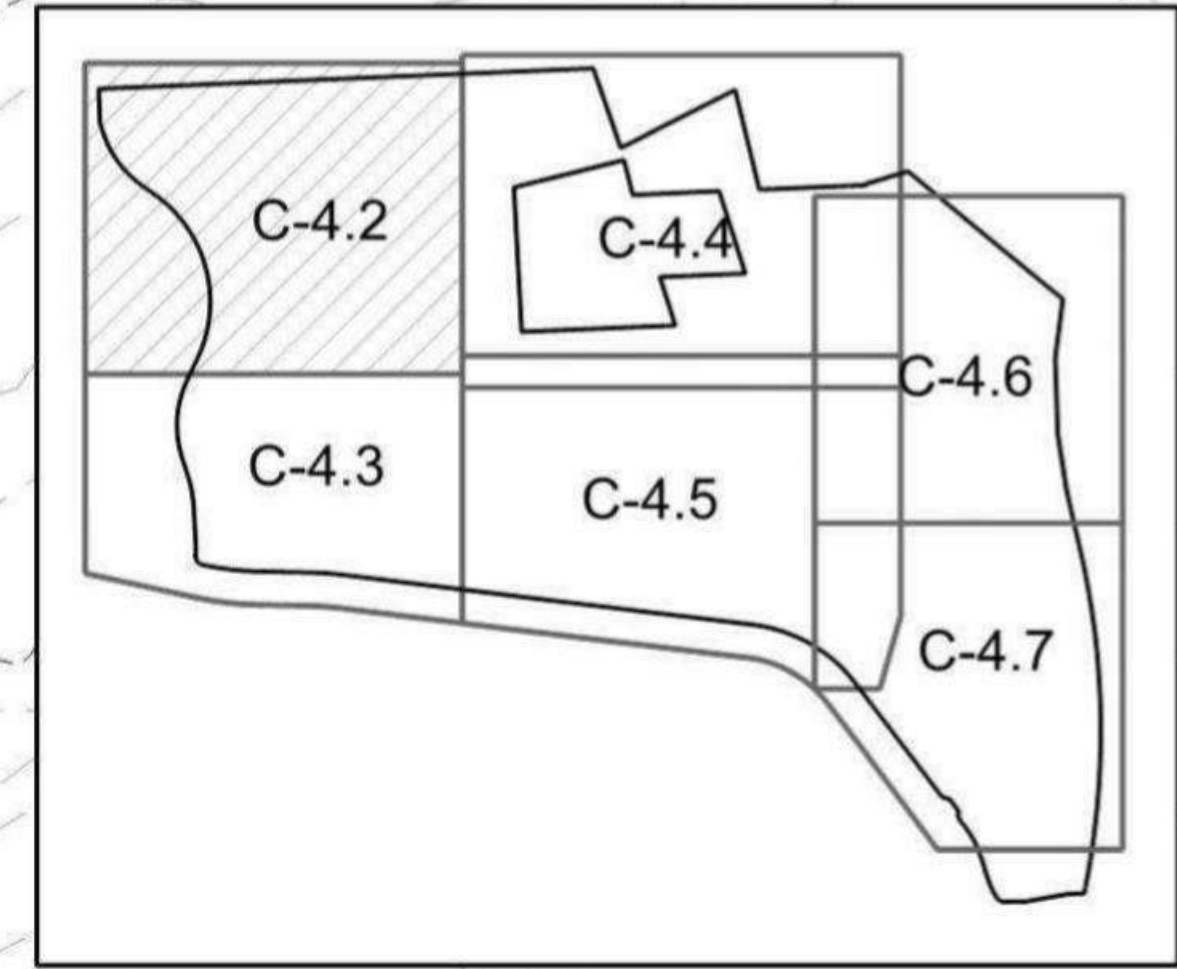
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www.landdesignnc.com
NC Eng. Firm License: C-0658

7/26/2017



DEVELOPMENT SUMMARY:

SITE ACREAGE:	± 122.72 ACRES
OVERALL:	PARCEL A (PER ZONING):
IMPERVIOUS AREA:	MX-2 TOTAL ACREAGE: 122.6 AC
MX-2 TOTAL ACREAGE:	TOTAL IMPERVIOUS AREA: 26.9 AC
TOTAL IMPERVIOUS AREA:	PERCENT IMPERVIOUS: 21.9%
OPEN SPACE:	MX-2 TOTAL ACREAGE: 122.6 AC
MX-2 TOTAL ACREAGE:	10% REQUIRED: 12.3 AC
10% REQUIRED:	PROPOSED: 65.26 AC (53.2%)
PROPOSED:	TREE SAVE (PHASES 2, 3, & 5)
TREE SAVE (PHASES 2, 3, & 5):	MX-2 TOTAL ACREAGE: 122.6 AC
MX-2 TOTAL ACREAGE:	10% REQUIRED: 12.3 AC
10% REQUIRED:	PROVIDED THIS PHASE: 13.0 AC (10.6%)



- LEGEND:**
- EXISTING CONTOUR MAJOR
 - EXISTING CONTOUR MINOR
 - PROPOSED TREE PROTECTION FENCE
 - PROPOSED CONTOUR ELEVATION
 - PROPOSED SPOT ELEVATION
 - FLOW DIRECTION ARROW
 - BUILDING PAD ELEVATION
 - DRAINAGE EASEMENT
 - STORM SEWER
 - COMBINATION INLET (CI)
 - DROP INLET (DI)
 - STORM MANHOLE
 - TREE SAVE AREA

- STORM NOTES:**
- ALL CATCH BASINS AND MANHOLES WITHIN RIGHT OF WAY ARE TO BE CONSTRUCTED PER NCDOT STANDARD # 20.05
 - ALL DOUBLE CATCH BASINS WITHIN RIGHT OF WAY ARE TO BE CONSTRUCTED PER NCDOT STANDARD # 20.03

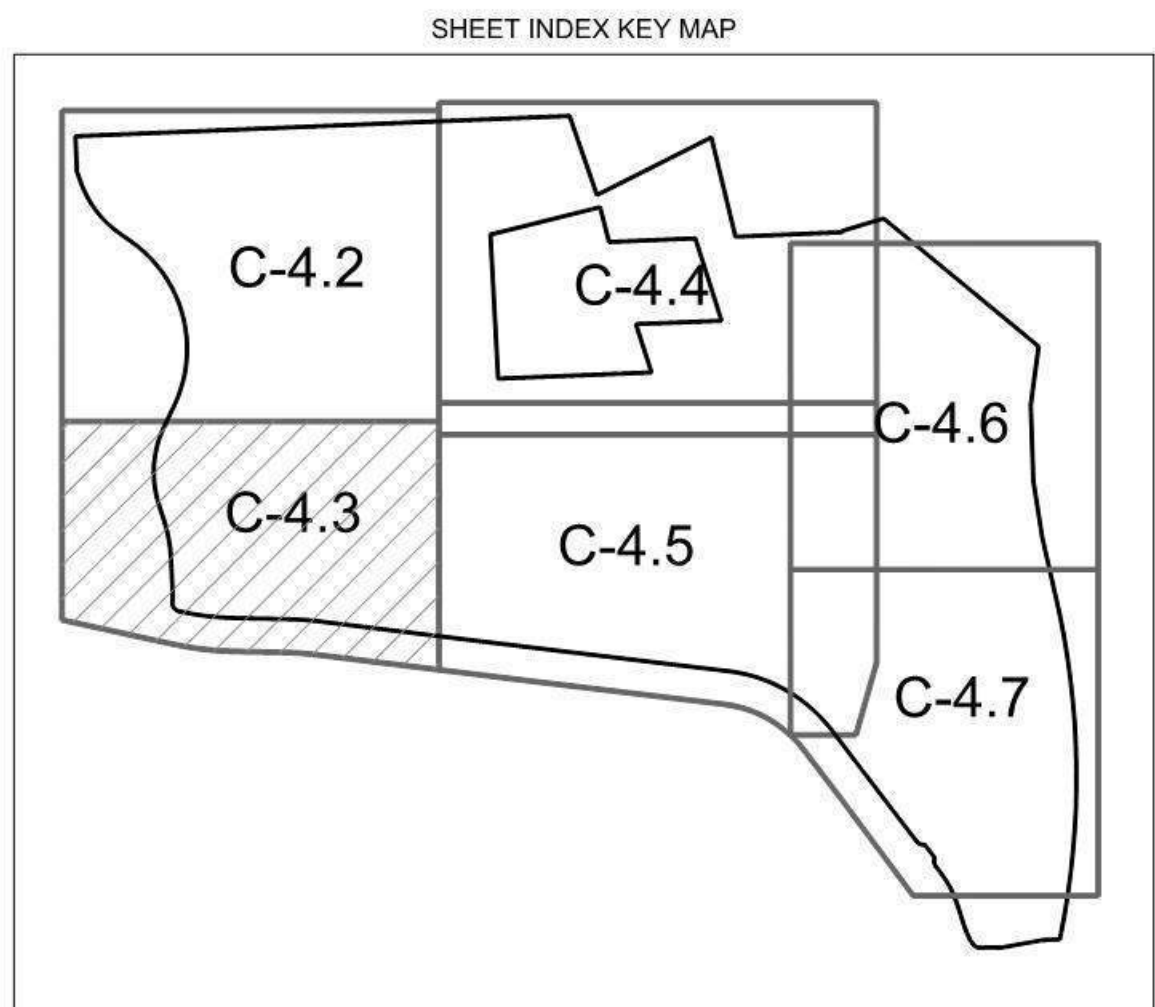
- PERMANENT SLOPE STABILIZATION NOTES:**
- ALL SLOPES 3:1 OR STEEPER AND ALL PERMANENT DIVERSION DITCHES SHALL BE STABILIZED USING NORTH AMERICAN GREEN VMASM SC250TM PERMANENT TURF REINFORCEMENT MAT INSTALLED PER MANUFACTURER'S SPECIFICATIONS USING STAPLE PATTERN "D".

- NOTES:**
- SEE SHEET C-1.1 FOR ADDITIONAL NOTES.
 - SEE SHEETS C-2.7 TO C-2.9 FOR ADDITIONAL DETAILS.
 - SEE CHAPTER 4 & 5 FOR STORM DRAINAGE AND BMP INFORMATION.



The Vineyards at Lake Wylie - Phases 2, 3, & 5
City of Charlotte, Mecklenburg County, North Carolina
Turnstone Group, LLC
STORM AND GRADING PLAN

DATE: 7/26/2017
DESIGNED BY: DWG
DRAWN BY: DWG
CHECKED BY: DWG
SCALE: AS SHOWN
PROJECT #: 101261
SHEET #:
C-4.2



- LEGEND:**
- EXISTING CONTOUR MAJOR
 - - - EXISTING CONTOUR MINOR
 - - - PROPOSED TREE PROTECTION FENCE
 - - - PROPOSED CONTOUR ELEVATION
 - - - PROPOSED SPOT ELEVATION
 - - - FLOW DIRECTION ARROW
 - - - BUILDING PAD ELEVATION
 - - - DRAINAGE EASEMENT
 - - - STORM SEWER
 - - - COMBINATION INLET (CI)
 - - - DROP INLET (DI)
 - - - STORM MANHOLE
 - - - TREE SAVE AREA

DEVELOPMENT SUMMARY:

SITE ACREAGE:	
OVERALL:	± 122.72 ACRES
PARCEL A (PER ZONING):	
IMPERVIOUS AREA:	
MX-2 TOTAL ACREAGE:	122.6 AC
TOTAL IMPERVIOUS AREA:	26.9 AC
PERCENT IMPERVIOUS:	21.9%
OPEN SPACE:	
MX-2 TOTAL ACREAGE:	122.6 AC
10% REQUIRED:	12.3 AC
PROPOSED:	65.26 AC (53.2%)
TREE SAVE (PHASES 2, 3, & 5):	
MX-2 TOTAL ACREAGE:	122.6 AC
10% REQUIRED:	12.3 AC
PROVIDED THIS PHASE:	13.0 AC (10.6%)

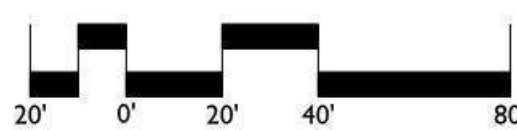
STORM NOTES:

- ALL CATCH BASINS AND MANHOLES WITHIN RIGHT OF WAY ARE TO BE CONSTRUCTED PER NCDOT STANDARD # 20.05
- ALL DOUBLE CATCH BASINS WITHIN RIGHT OF WAY ARE TO BE CONSTRUCTED PER NCDOT STANDARD # 20.03

PERMANENT SLOPE STABILIZATION NOTES:

- ALL SLOPES 3:1 OR STEEPER AND ALL PERMANENT DIVERSION DITCHES SHALL BE STABILIZED USING NORTH AMERICAN GREEN VMA™ 90250™ PERMANENT TURF REINFORCEMENT MAT INSTALLED PER MANUFACTURER'S SPECIFICATIONS USING STAPLE PATTERN "D".

- NOTES:
- SEE SHEET C-1.1 FOR ADDITIONAL NOTES.
 - SEE SHEETS C-2.7 TO C-2.9 FOR ADDITIONAL DETAILS.
 - SEE CHAPTER 4 & 5 FOR STORM DRAINAGE AND BMP INFORMATION.



The Vineyards at Lake Wylie - Phases 2, 3, & 5
City of Charlotte, Mecklenburg County, North Carolina
Turquoise Group, LLC

STORM AND GRADING PLAN

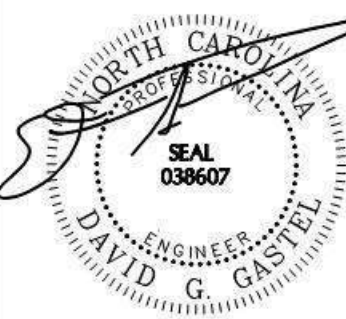
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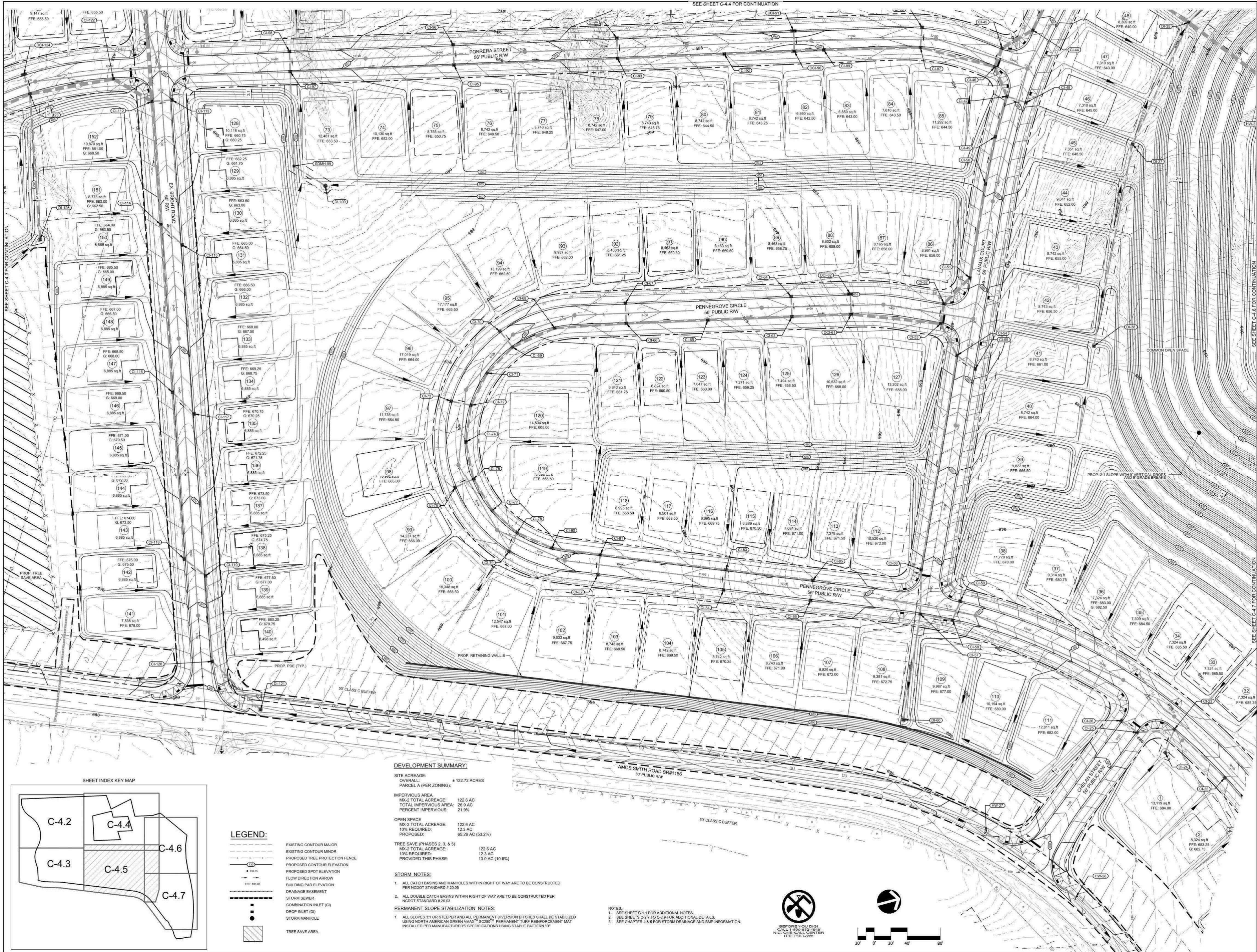
DATE: 7/26/2017
DESIGNED BY: DVC
CHECKED BY: DVC
Q.C. BY: DVC
PROJECT #: 101561

SHEET #:

C-4.3

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NC Reg. Firm License C-0458





DEVELOPMENT SUMMARY:

SITE ACREAGE: ± 122.72 ACRES

OVERALL: ± 122.72 ACRES

PARCEL A (PER ZONING): ± 122.72 ACRES

IMPERVIOUS AREA

MX-2 TOTAL ACREAGE: 122.6 AC

TOTAL IMPERVIOUS AREA: 28.9 AC

PERCENT IMPERVIOUS: 21.9%

OPEN SPACE

MX-2 TOTAL ACREAGE: 122.6 AC

10% REQUIRED: 12.3 AC

PROPOSED: 65.26 AC (53.2%)

TREE SAVE (PHASES 2, 3, & 5)

MX-2 TOTAL ACREAGE: 122.6 AC

10% REQUIRED: 12.3 AC

PROVIDED THIS PHASE: 13.0 AC (10.6%)

STORM NOTES:

1. ALL CATCH BASINS AND MANHOLES WITHIN RIGHT OF WAY ARE TO BE CONSTRUCTED PER NCDOT STANDARD # 20.03.

2. ALL DOUBLE CATCH BASINS WITHIN RIGHT OF WAY ARE TO BE CONSTRUCTED PER NCDOT STANDARD # 20.03.

PERMANENT SLOPE STABILIZATION NOTES:

1. ALL SLOPES 3:1 OR STEEPER AND ALL PERMANENT DIVERSION DITCHES SHALL BE STABILIZED USING NORTH AMERICAN GREEN VMA™ SC250™ PERMANENT TURF REINFORCEMENT MAT INSTALLED PER MANUFACTURER'S SPECIFICATIONS USING STAPLE PATTERN 'D'.

NOTES:
1. SEE SHEET C-1.1 FOR ADDITIONAL NOTES.
2. SEE SHEETS C-2.1 TO C-2.9 FOR ADDITIONAL DETAILS.
3. SEE CHAPTER 4 & 5 FOR STORM DRAINAGE AND BMP INFORMATION.

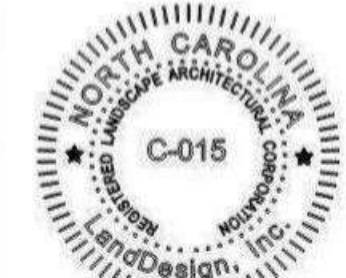


The Vineyards at Lake Wylie - Phases 2, 3, & 5
City of Charlotte, Mecklenburg County, North Carolina
Turnstone Group, LLC
STORM AND GRADING PLAN

REVISIONS:

DATE: 7/26/2017
DESIGNED BY: DWG
DRAWN BY: DWG
CHECKED BY: DWG
SCALE: 1" = 40'
PROJECT #: 101261
SHEET #:

C-4.5



7/26/2017

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NC Eng. Firm License: C-0658



SEE SHEET C-4.4 FOR CONTINUATION

SEE SHEET C-4.5 FOR CONTINUATION

SEE SHEET C-4.7 FOR CONTINUATION

DEVELOPMENT SUMMARY:

SITE ACREAGE:
OVERALL: ± 122.72 ACRES
PARCEL A (PER ZONING): ± 122.72 ACRES

IMPERVIOUS AREA:
MX-2 TOTAL ACREAGE: 122.6 AC
TOTAL IMPERVIOUS AREA: 26.9 AC
PERCENT IMPERVIOUS: 21.9%

OPEN SPACE:
MX-2 TOTAL ACREAGE: 122.6 AC
10% REQUIRED: 12.3 AC
PROPOSED: 65.26 AC (53.2%)

TREE SAVE (PHASES 2, 3, & 5):
MX-2 TOTAL ACREAGE: 122.6 AC
10% REQUIRED: 12.3 AC
PROVIDED THIS PHASE: 13.0 AC (10.6%)

LEGEND:

- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- PROPOSED TREE PROTECTION FENCE
- PROPOSED CONTOUR ELEVATION
- PROPOSED SPOT ELEVATION
- FLOW DIRECTION ARROW
- BUILDING PAD ELEVATION
- DRAINAGE EASEMENT
- STORM SEWER
- COMBINATION INLET (CI)
- DROP INLET (DI)
- STORM MANHOLE

STORM NOTES:

- ALL CATCH BASINS AND MANHOLES WITHIN RIGHT OF WAY ARE TO BE CONSTRUCTED PER NCDOT STANDARD # 20.05
- ALL DOUBLE CATCH BASINS WITHIN RIGHT OF WAY ARE TO BE CONSTRUCTED PER NCDOT STANDARD # 20.03

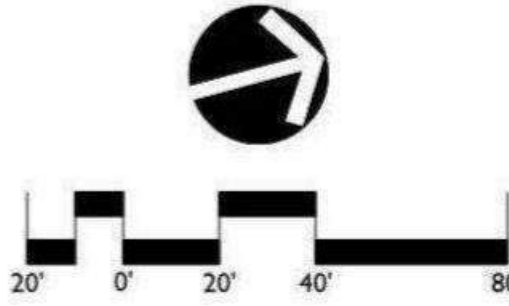
PERMANENT SLOPE STABILIZATION NOTES:

- ALL SLOPES 3:1 OR STEEPER AND ALL PERMANENT DIVERSION DITCHES SHALL BE STABILIZED USING NORTH AMERICAN GREEN VMA™ #6250™ PERMANENT TURF REINFORCEMENT MAT INSTALLED PER MANUFACTURER'S SPECIFICATIONS USING STAPLE PATTERN "D".

- NOTES:
- SEE SHEET C-1.1 FOR ADDITIONAL NOTES.
 - SEE SHEETS C-2.7 TO C-2.9 FOR ADDITIONAL DETAILS.
 - SEE CHAPTER 4 & 5 FOR STORM DRAINAGE AND BMP INFORMATION.

HW-163 TO HW-164	
Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.015
Channel Slope	0.0200 ft/ft
Diameter	3.00 ft
Discharge	8.60 cfs
Results	
Normal Depth	0.09 ft
Flow Area	0.98 ft²
Wetted Perimeter	2.75 ft
Hydraulic Radius	0.36 ft
Top Width	2.30 ft
Critical Depth	0.93 ft
Percent Full	16.6 %
Critical Slope	0.00066 ft/ft
Velocity	8.60 ft/s
Velocity Head	1.20 ft
Specific Energy	1.70 ft
Froude Number	2.42
Maximum Discharge	150.22 cfs
Discharge Full	150.22 cfs
Slope Full	0.00017 ft/ft
Flow Type	SuperCritical
GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.00 ft
Normal Depth Over Rise	0.00 ft
Downstream Velocity	Infinity ft/s

HW-165 TO HW-166	
Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.015
Channel Slope	0.0200 ft/ft
Diameter	3.00 ft
Discharge	9.07 cfs
Results	
Normal Depth	0.96 ft
Flow Area	1.00 ft²
Wetted Perimeter	2.78 ft
Hydraulic Radius	0.43 ft
Top Width	2.44 ft
Critical Depth	1.17 ft
Percent Full	84.0 %
Critical Slope	0.00029 ft/ft
Velocity	7.08 ft/s
Velocity Head	0.90 ft
Specific Energy	1.60 ft
Froude Number	1.47
Maximum Discharge	13.18 cfs
Discharge Full	13.18 cfs
Slope Full	0.00746 ft/ft
Flow Type	SuperCritical
GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.00 ft
Normal Depth Over Rise	0.00 ft
Downstream Velocity	Infinity ft/s

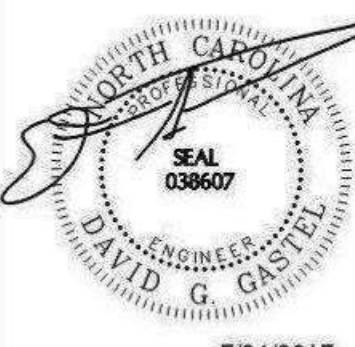


BEFORE YOU DIG
CALL 800-368-6868
N.C. ONE-CALL CENTER
IT'S THE LAW!

The Vineyards at Lake Wylie - Phases 2, 3, & 5
City of Charlotte, Mecklenburg County, North Carolina
Turnstone Group, LLC

STORM AND GRADING PLAN

REVISIONS:
DATE: 7/26/2017
DESIGNED BY: DWG
CHECKED BY: DWG
C.C. BY: DWG
PROJECT #: 101261
SHEET #:
C-4.6

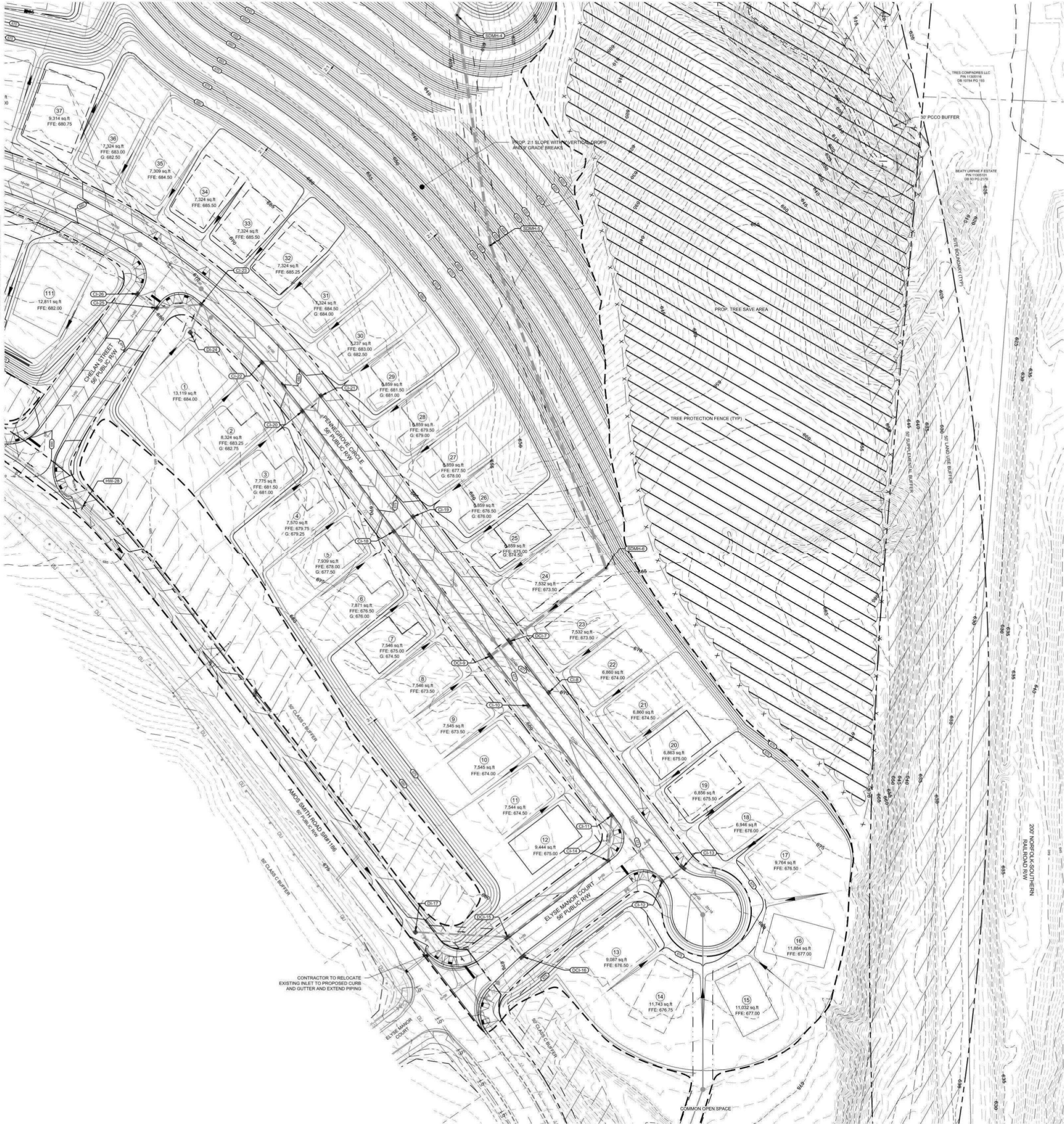


7/26/2017

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www.landdesignnc.com
NC Eng. License: C-0658

SEE SHEET C-4.5 FOR CONTINUATION

SEE SHEET C-4.6 FOR CONTINUATION



DEVELOPMENT SUMMARY:

SITE ACREAGE:	± 122.72 ACRES
OVERALL:	
PARCEL A (PER ZONING):	
IMPERVIOUS AREA	
MX-2 TOTAL ACREAGE:	122.6 AC
TOTAL IMPERVIOUS AREA:	26.9 AC
PERCENT IMPERVIOUS:	21.9%
OPEN SPACE	
MX-2 TOTAL ACREAGE:	122.6 AC
10% REQUIRED:	12.3 AC
PROPOSED:	65.26 AC (53.2%)
TREE SAVE (PHASES 2, 3, & 5)	122.6 AC
MX-2 TOTAL ACREAGE:	12.3 AC
10% REQUIRED:	12.3 AC
PROVIDED THIS PHASE:	13.0 AC (10.6%)

STORM NOTES:

- ALL CATCH BASINS AND MANHOLES WITHIN RIGHT OF WAY ARE TO BE CONSTRUCTED PER NCDOT STANDARD # 20.05
- ALL DOUBLE CATCH BASINS WITHIN RIGHT OF WAY ARE TO BE CONSTRUCTED PER NCDOT STANDARD # 20.03

PERMANENT SLOPE STABILIZATION NOTES:

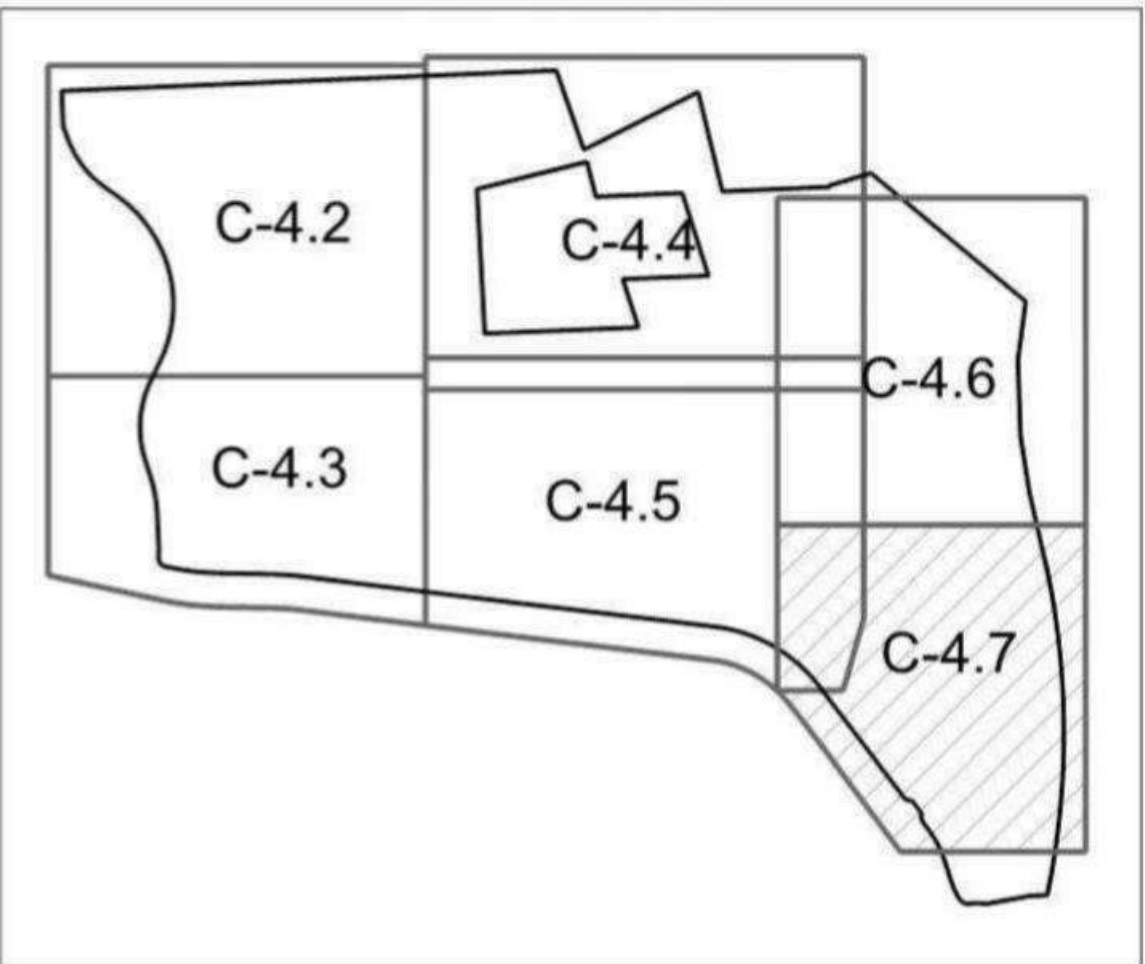
- ALL SLOPES 3:1 OR STEEPER AND ALL PERMANENT DIVERSION DITCHES SHALL BE STABILIZED USING NORTH AMERICAN GREEN VMA™ S-250™ PERMANENT TURF REINFORCEMENT MAT INSTALLED PER MANUFACTURER'S SPECIFICATIONS USING STAPLE PATTERN "D".

- NOTES:
- SEE SHEET C-1.1 FOR ADDITIONAL NOTES.
 - SEE SHEETS C-2.7 TO C-2.9 FOR ADDITIONAL DETAILS.
 - SEE CHAPTER 4 & 5 FOR STORM DRAINAGE AND BMP INFORMATION.

LEGEND:

- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- PROPOSED TREE PROTECTION FENCE
- PROPOSED CONTOUR ELEVATION
- PROPOSED SPOT ELEVATION
- FLOW DIRECTION ARROW
- BUILDING PAD ELEVATION
- DRAINAGE EASEMENT
- STORM SEWER
- COMBINATION INLET (CI)
- DROP INLET (DI)
- STORM MANHOLE

SHEET INDEX KEY MAP



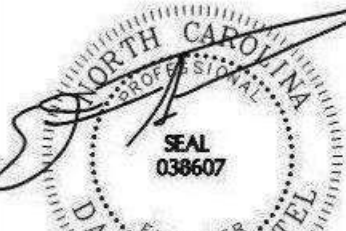
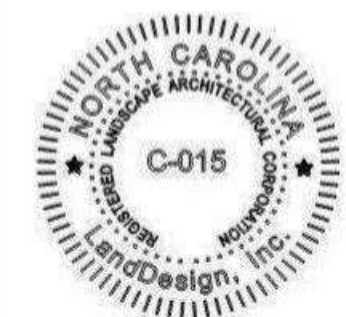
The Vineyards at Lake Wylie - Phases 2, 3, & 5
City of Charlotte, Mecklenburg County, North Carolina
Turnstone Group, LLC
STORM AND GRADING PLAN

REVISIONS:

DATE: 7/26/2017
DESIGNED BY: DWG
DRAWN BY: DWG
CHECKED BY: DWG
SCALE: 1" = 40' (S&T)
PROJECT #: 1013361

SHEET #:
C-4.7

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7/26/2017



ENGLISH STANDARD DRAWING FOR
REINFORCED CONCRETE ENDWALL
FOR SINGLE 54" PIPE - 90° SKEW

SHEET 1 OF 2
838.21



NCDOT STANDARDS
APPROVED FOR USE IN THE CITY OF CHARLOTTE
AND CHARLOTTE ETJ

STD. NO.	REV.
20.00B	5



SLAB TYPE CATCH BASIN
15" THRU 48" PIPE

STD. NO.	REV.
20.05A	7



NCDOT STANDARDS
APPROVED FOR USE IN THE CITY OF CHARLOTTE
AND CHARLOTTE ETJ

STD. NO.	REV.
20.00C	10



MANHOLE RING AND COVER
FOR SLAB TYPE CATCH BASIN

STD. NO.	REV.
20.05B	5



CITY OF CHARLOTTE
D DEVELOPMENT STANDARDS
INCLUDES CHARLOTTE ETC

RIPRAP APRON AT PIPE OUTFALLS
OTHER THAN AT SWIM

STD. NO.	REV.
20.22	7



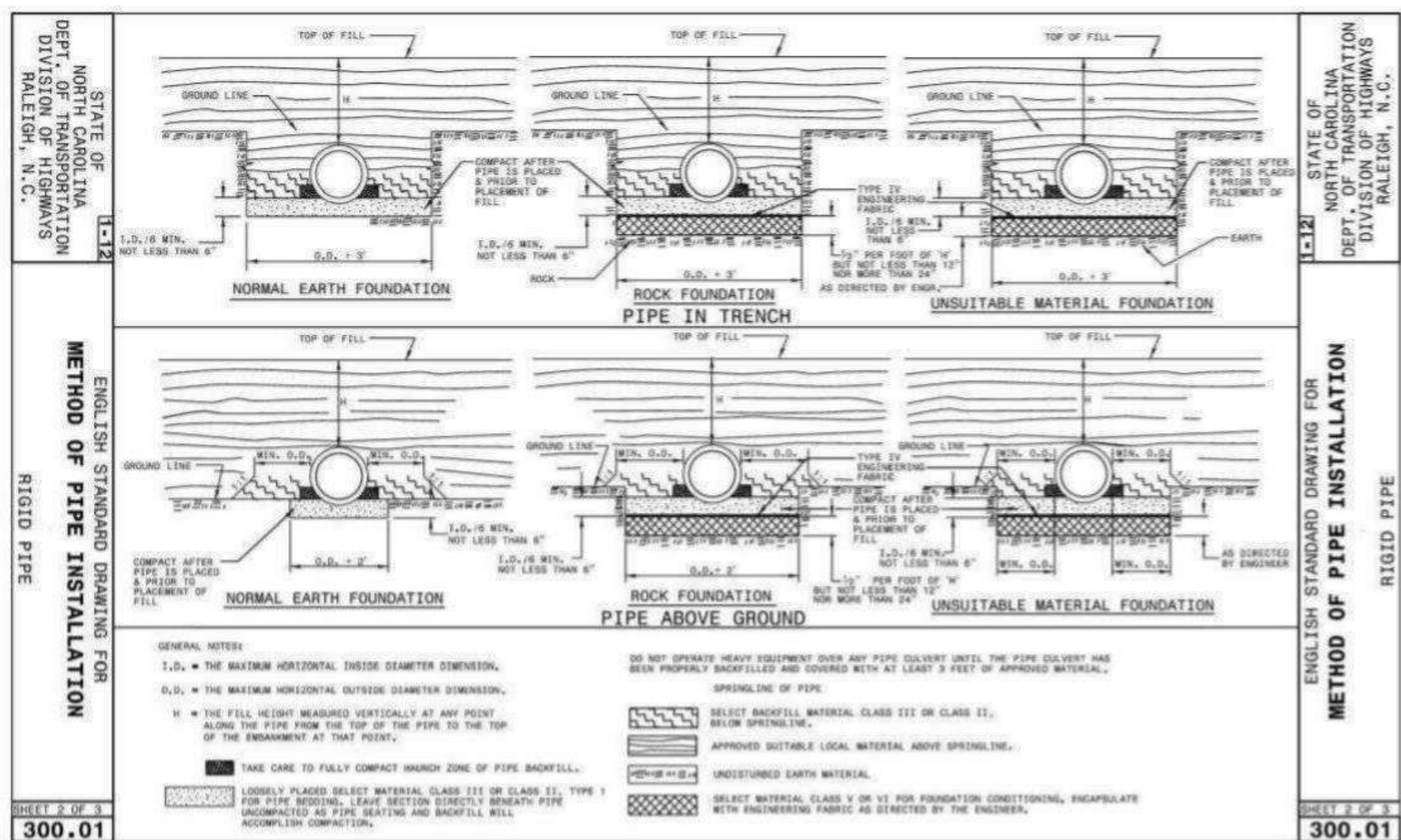
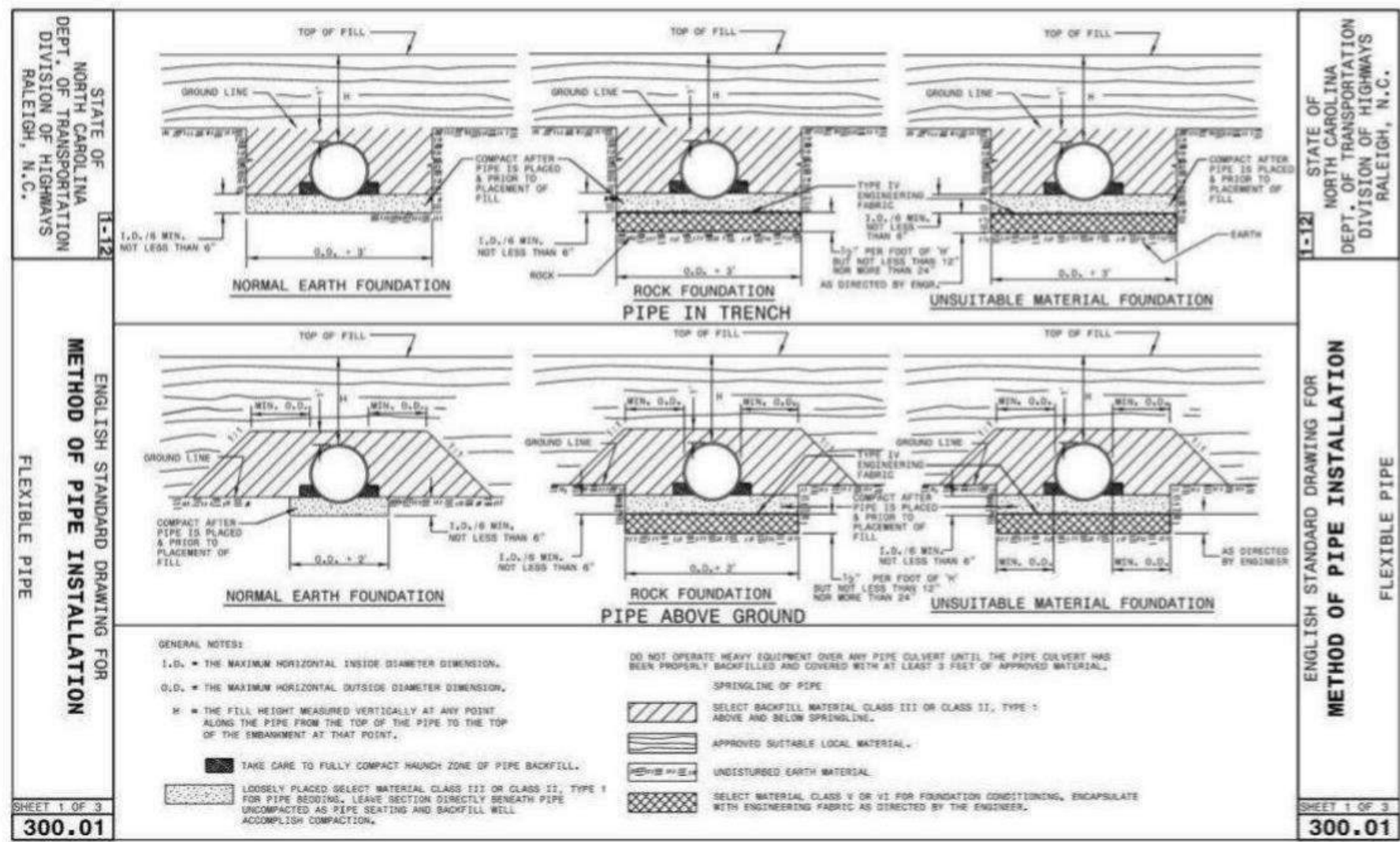
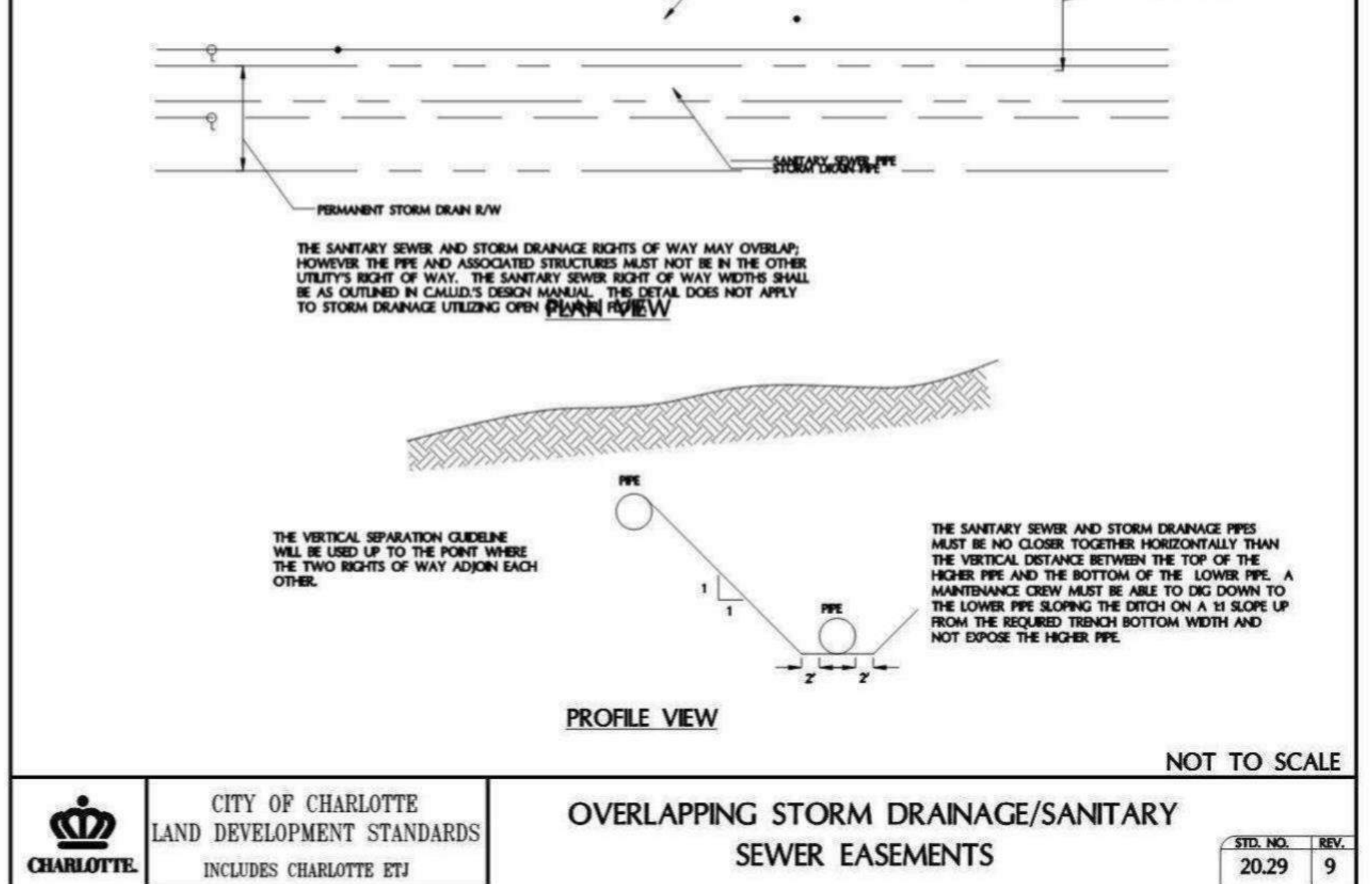
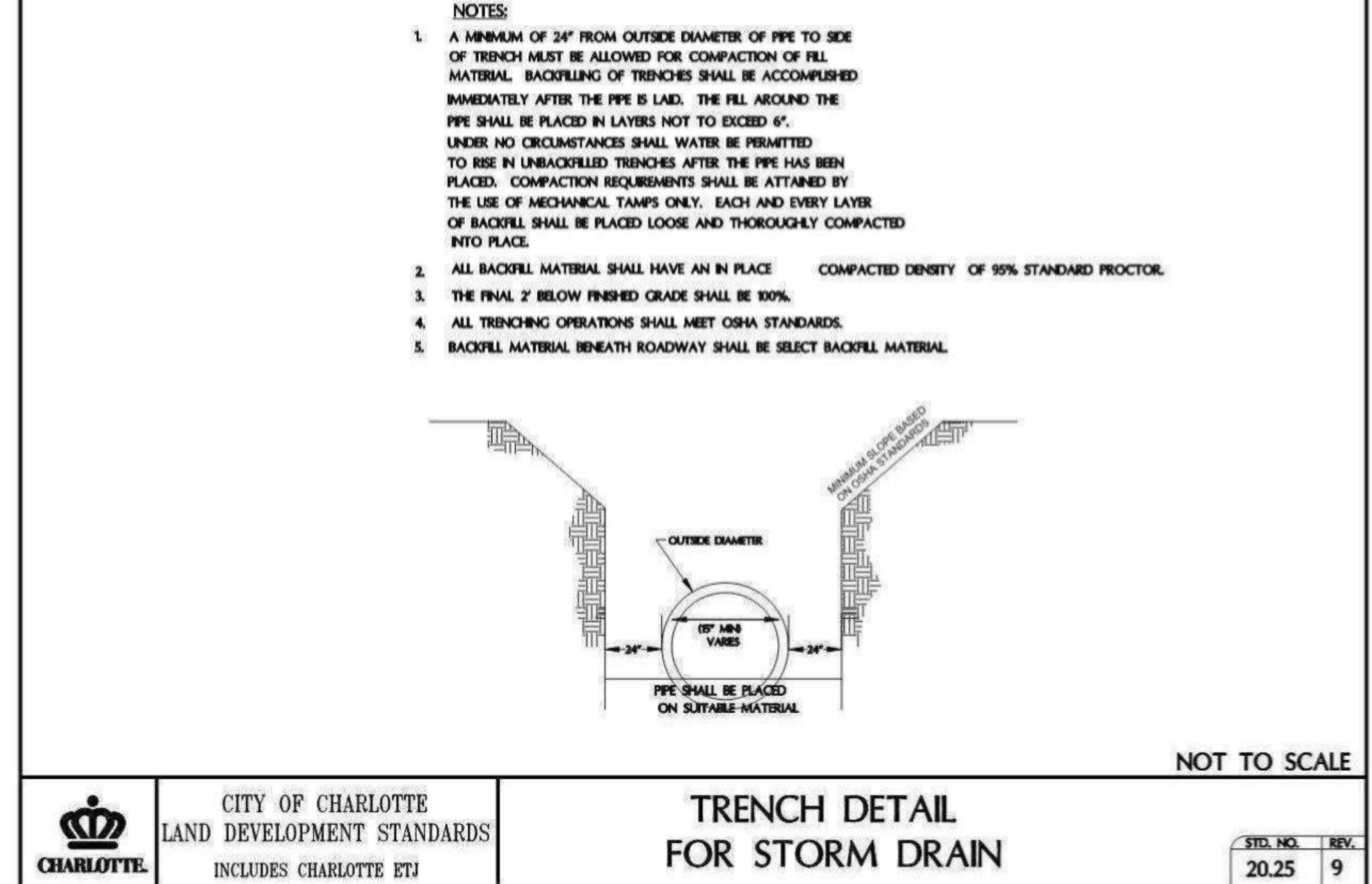
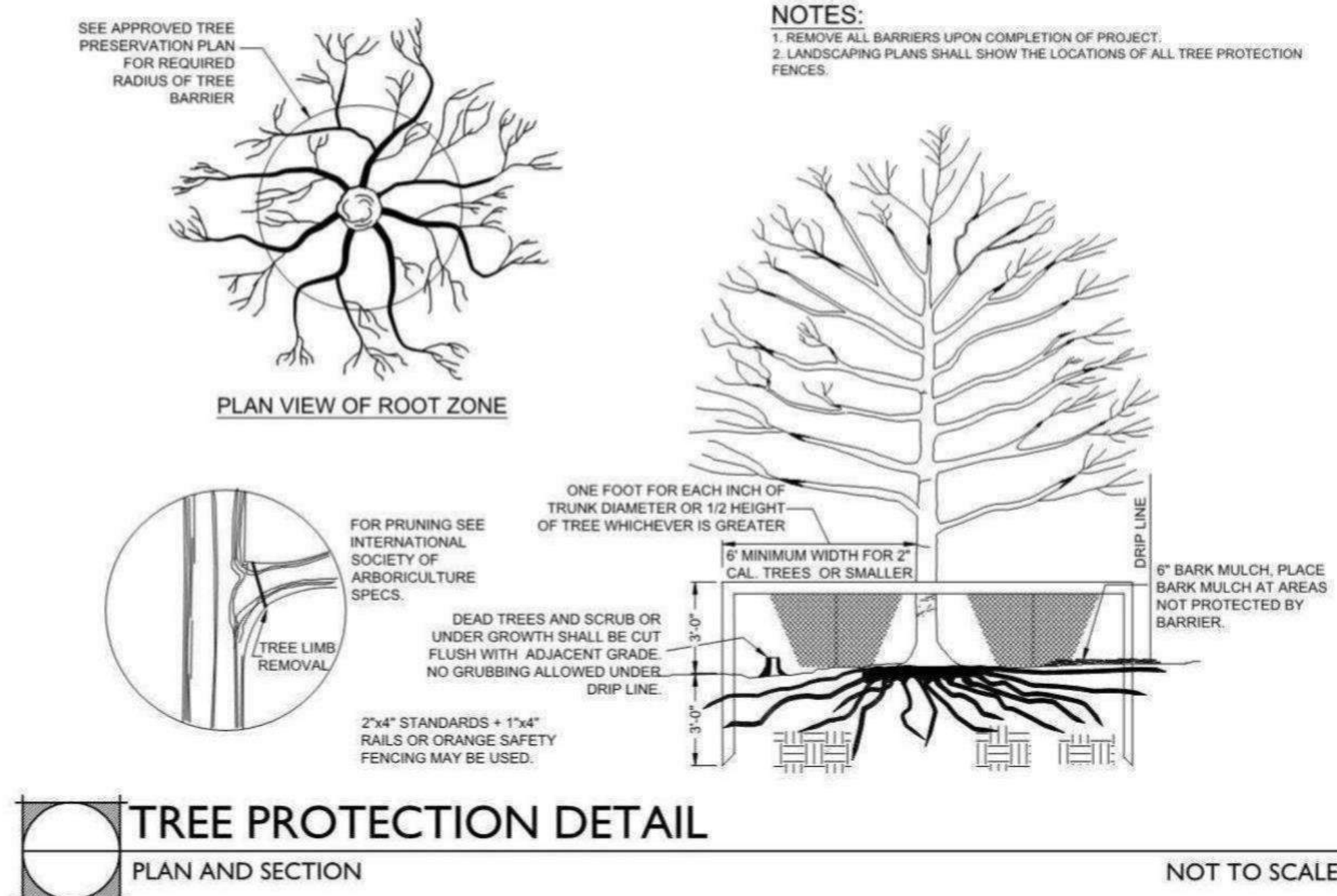
NCDOT STANDARDS
APPROVED FOR USE IN THE CITY OF CHARLOTTE
AND CHARLOTTE ETJ

STD. NO.	REV
20.00A	



BRICK DOUBLE CATCH BASIN
15" THRU 36" PIPE

STD. NO.	REV.
20.03	8



ENGLISH STANDARD DRAWING FOR METHOD OF PIPE INSTALLATION FILL HEIGHT TABLES

FLEXIBLE PIPE

Round Corrugated Aluminum Pipe 2' dia x 1/2 corrugation

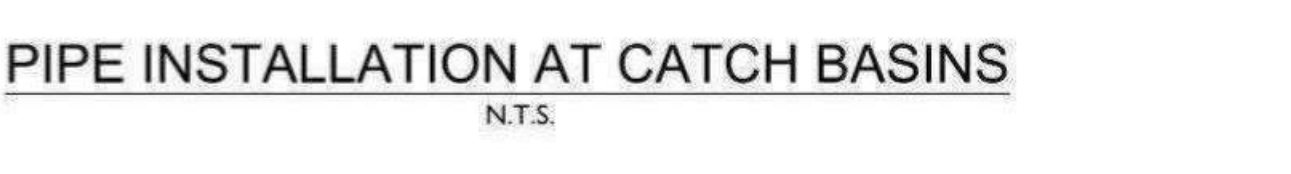
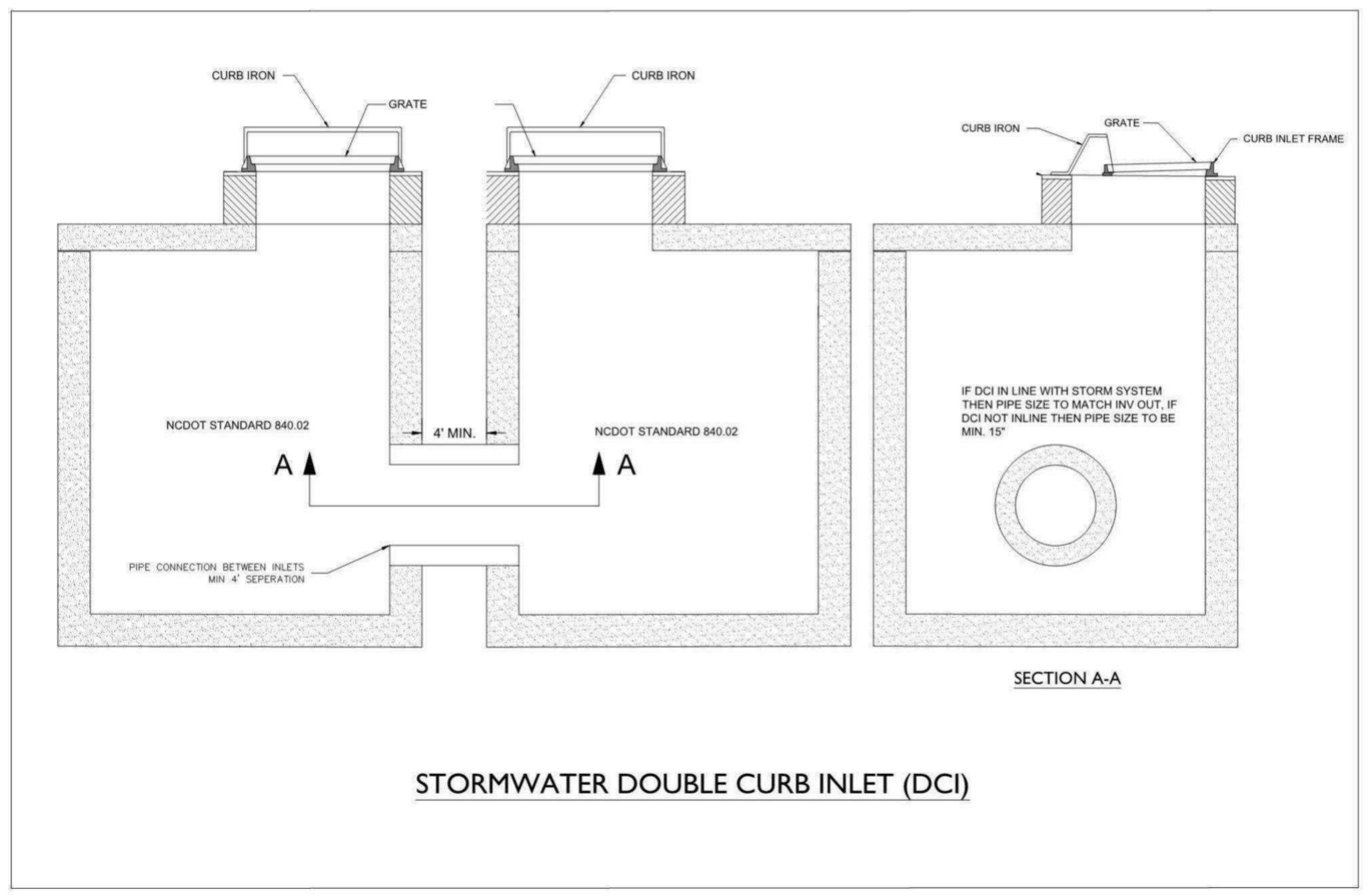
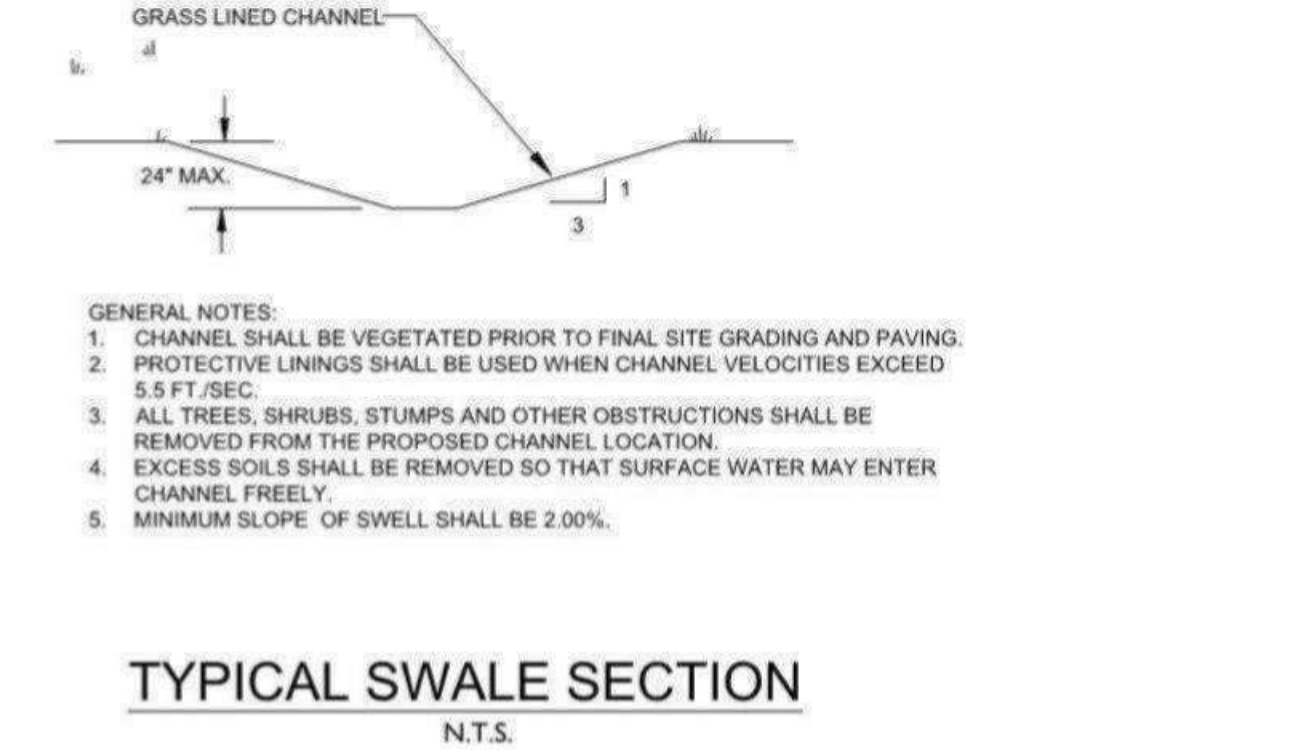
Minimum Cover (feet)	Minimum Depth of Inlet (feet)	Minimum Depth of Inlet (feet)
10	12	12
12	12	12
14	12	12
16	12	12
18	12	12
20	12	12
22	12	12
24	12	12
26	12	12
28	12	12
30	12	12
32	12	12
34	12	12
36	12	12
38	12	12
40	12	12
42	12	12
44	12	12
46	12	12
48	12	12
50	12	12
52	12	12
54	12	12
56	12	12
58	12	12
60	12	12
62	12	12
64	12	12
66	12	12
68	12	12
70	12	12
72	12	12
74	12	12
76	12	12
78	12	12
80	12	12
82	12	12
84	12	12
86	12	12
88	12	12
90	12	12
92	12	12
94	12	12
96	12	12
98	12	12
100	12	12

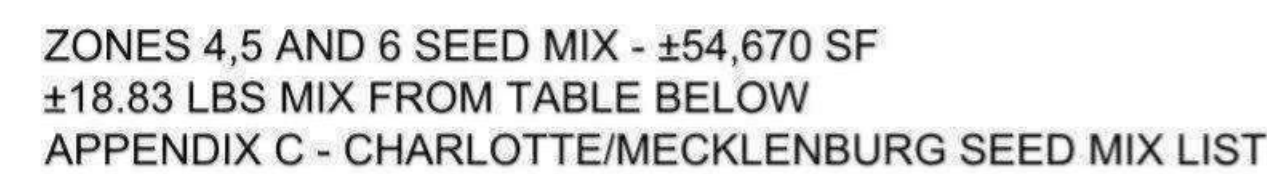
RIGID PIPE

Round Corrugated Aluminum Pipe 2' dia x 1/2 corrugation

Minimum Cover (feet)	Minimum Depth of Inlet (feet)	Minimum Depth of Inlet (feet)
10	12	12
12	12	12
14	12	12
16	12	12
18	12	12
20	12	12
22	12	12
24	12	12
26	12	12
28	12	12
30	12	12
32	12	12
34	12	12
36	12	12
38	12	12
40	12	12
42	12	12
44	12	12
46	12	12
48	12	12
50	12	12
52	12	12
54	12	12
56	12	12
58	12	12
60	12	12
62	12	12
64	12	12
66	12	12
68	12	12
70	12	12
72	12	12
74	12	12
76	12	12
78	12	12
80	12	12
82	12	12
84	12	12
86	12	12
88	12	12
90	12	12
92	12	12
94	12	12
96	12	12
98	12	12
100	12	12

NOT TO SCALE





WET POND #1		
WET POND PLANTING CALCULATOR		
ZONES 4-6	54,670	SF
400 STEMS PER ACRE	502.02	STEMS
10% LARGE MATURING TREES	51	TREES
90% OTHER STEMS	452	STEMS
*OTHER STEMS INCLUDE:		
SMALL MATURING DECIDUOUS TREES		
EVERGREEN TREES		
DECIDUOUS SHRUBS		
EVERGREEN SHRUBS		

ADDITIONAL 20 LARGE MATURING TREES/ACRE	1.3 AC*20=26 TREE
---	-------------------

NO TREES OR SHRUBS TO BE PLACED WITHIN THE LIMITS OF THE WET POND GRADING DUE TO POTENTIAL ROOT DAMAGE TO THE DAM ITSELF. PLANT SPECIES AND LOCATIONS TO BE FIELD VERIFIED UPON STABILIZATION OF THE WET POND PLANTING AREA LOCATED WEST OF THE RETAINING WALL.

WET POND PLANTING CALCULATOR

ZONES 1-3	14,113 SF
0.5 PLANTS PER SF	7,056 PLANTS

PLEASE SEE DTL. 5/C-6.9 FOR BMP SOIL AND PLANTING NOTES

TOTAL LARGE MATURING TREES: 77TOTAL OTHER STEMS: 452TOTAL AQUATIC PLANTS: 8,394

REVISIONS:

DATE: 7/26/2017
DESIGNED BY: DWC
DRAWN BY: DWC
CHECKED BY: DGG
Q.C. BY: DGG
SCALE: 1" = 20'
PROJECT #: 1015261

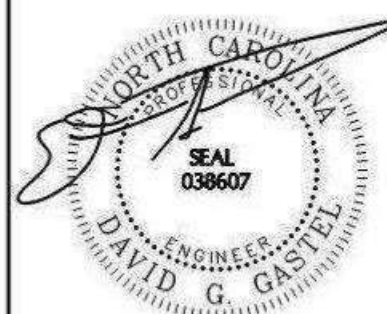
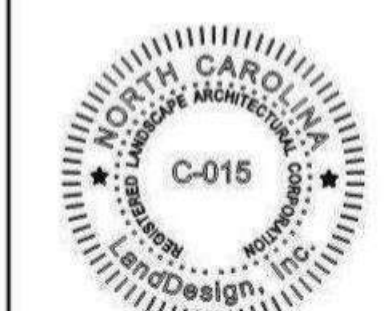
SHEET #: C-4.11

The Vineyards at Lake Wylie - Phases 2, 3, & 5
City of Charlotte, Mecklenburg County, North Carolina
Turnstone Group, LLC

WET POND A PLANTING PLAN

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7/26/2017

WIS* is the Regional Weekend Index for Delta (Region 2 - SE US).

PLANT_SCHEDULE_ZONES_4,5,6

TOTAL LARGE MATURING TREES: 62

TOTAL OTHER STEMS: 226

TOTAL AQUATIC PLANTS: 8,963

DESIGNED BY: DWC
DRAWN BY: DWC
CHECKED BY: DGG
Q.C. BY: DGG
SCALE: 1" = 40'
PROJECT #: 1015261

