

# PERMIT DRAWINGS

## AREA 1 PROPOSED CAP DESIGN

### ASHEVILLE REGIONAL AIRPORT

#### FLETCHER, NORTH CAROLINA

#### PROJECT NO. GC7177

#### DECEMBER 2020



SOURCE: MICROSOFT, BING MAPS  
**VICINITY MAP**  
 SCALE: 1" = 20 MILES

DRAWING LIST	
NUMBER	TITLE
1	TITLE SHEET
2	EXISTING CONDITIONS
3	OVERALL SITE PLAN
4	SUBGRADE GRADING PLAN I
5	SUBGRADE GRADING PLAN II
6	FINAL GRADING PLAN I
7	FINAL GRADING PLAN II
8	STORMWATER POND PLAN
9	CAP CROSS SECTIONS
10	STORMWATER POND CROSS SECTIONS AND OUTLET DETAILS
11	STORMWATER DETAILS
12	CONSTRUCTION DETAILS I
13	CONSTRUCTION DETAILS II
14	MISCELLANEOUS DETAILS I
15	MISCELLANEOUS DETAILS II
16	MISCELLANEOUS DETAILS III



SOURCE: MICROSOFT, BING MAPS  
**LOCATION MAP**  
 SCALE: 1" = 2 MILES

PREPARED FOR:

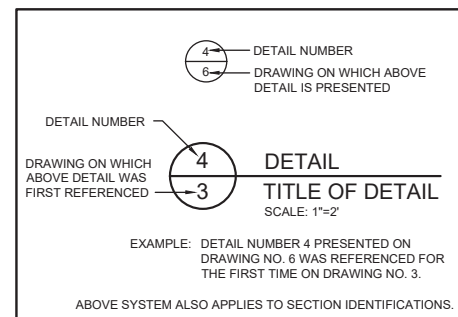


DUKE ENERGY PROGRESS, LLC  
 400 SOUTH TRYON STREET  
 CHARLOTTE, NC 28202 USA

PREPARED BY:



1300 SOUTH MINT STREET, SUITE 300  
 CHARLOTTE, NC 28203 USA  
 PHONE: 704.227.0840



DETAIL IDENTIFICATION LEGEND

REV	DATE	DESCRIPTION	DRN	APP
1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ

1300 SOUTH MINT STREET, SUITE 300  
 CHARLOTTE, NC 28203 USA  
 PHONE: 704.227.0840  
 NC LICENSE NO.: C-3500

TITLE:	<b>TITLE SHEET</b>
PROJECT:	PERMIT DRAWINGS AREA 1 PROPOSED CAP DESIGN
SITE:	ASHEVILLE REGIONAL AIRPORT FLETCHER, NORTH CAROLINA

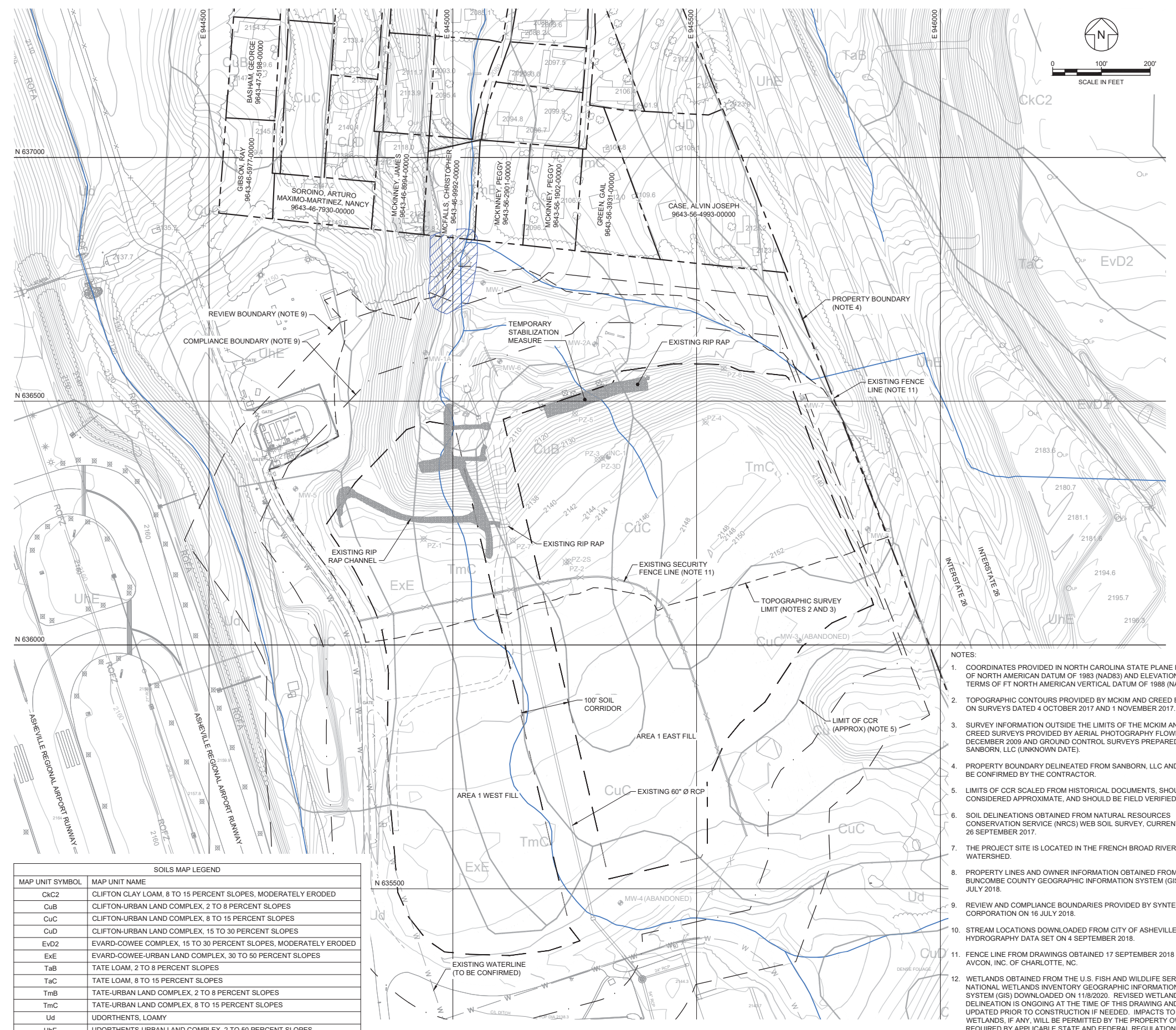
DESIGN BY: CSJ	DATE: DECEMBER 2020	PROJECT NO.: GC7177
DRAWN BY: MAF	CHECKED BY: CSJ	FILE: GC6463.08P010
REVIEWED BY: VMD	APPROVED BY: CSJ	DRAWING NO.: 1 OF 16

Digitally signed by Chris Jordan  
Char: 2020.12.11 14:22:38 -0500

11 December 2020  
DATE

FOR REVIEW PURPOSES ONLY  
 PERMIT DRAWINGS - NOT FOR CONSTRUCTION





SOURCE: MICROSOFT, BING MAPS  
**KEY MAP**  
 SCALE: 1" = 2000'

**LEGEND**

	PROPERTY (APPROXIMATE) (NOTES 4 AND 8)
	REVIEW BOUNDARY (NOTE 9)
	COMPLIANCE BOUNDARY (NOTE 9)
	TOPOGRAPHIC SURVEY LIMIT (NOTES 2 AND 3)
	LIMIT OF CCR (APPROXIMATE) (NOTE 5)
	STREAMS (NOTE 10)
	WETLANDS (NOTE 12)
	FENCE LINE (NOTE 11)
	UNPAVED ROAD/TRAILS
	WATER
	TREE LINE
	BRUSH LINE
	EXISTING ELEVATION CONTOUR
	EXISTING SPOT ELEVATION
	POWER POLE
	RUNWAY LIGHT
	LIGHT POLE
	SIGN
	POST
	GPS CONTROL POINT
	DROP INLET / CATCH BASIN
	DRAINAGE STRUCTURE
	DRAINAGE OUTLET HEADWALL
	EXISTING WATERLINE
	HYDRANT
	PIEZOMETER
	MONITORING WELL
	INCLINOMETER
	NRCS SOIL DELINEATION

- NOTES:**
- COORDINATES PROVIDED IN NORTH CAROLINA STATE PLANE IN TERMS OF NORTH AMERICAN DATUM OF 1983 (NAD83) AND ELEVATIONS IN TERMS OF FT NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
  - TOPOGRAPHIC CONTOURS PROVIDED BY MCKIM AND CREED BASED ON SURVEYS DATED 4 OCTOBER 2017 AND 1 NOVEMBER 2017.
  - SURVEY INFORMATION OUTSIDE THE LIMITS OF THE MCKIM AND CREED SURVEYS PROVIDED BY AERIAL PHOTOGRAPHY FLOWN 11 DECEMBER 2009 AND GROUND CONTROL SURVEYS PREPARED BY SANBORN, LLC (UNKNOWN DATE).
  - PROPERTY BOUNDARY DELINEATED FROM SANBORN, LLC AND SHALL BE CONFIRMED BY THE CONTRACTOR.
  - LIMITS OF CCR SCALED FROM HISTORICAL DOCUMENTS, SHOULD BE CONSIDERED APPROXIMATE, AND SHOULD BE FIELD VERIFIED.
  - SOIL DELINEATIONS OBTAINED FROM NATURAL RESOURCES CONSERVATION SERVICE (NRCS) WEB SOIL SURVEY, CURRENT AS OF 26 SEPTEMBER 2017.
  - THE PROJECT SITE IS LOCATED IN THE FRENCH BROAD RIVER WATERSHED.
  - PROPERTY LINES AND OWNER INFORMATION OBTAINED FROM BUNCOMBE COUNTY GEOGRAPHIC INFORMATION SYSTEM (GIS) ON 25 JULY 2018.
  - REVIEW AND COMPLIANCE BOUNDARIES PROVIDED BY SYNTERRA CORPORATION ON 16 JULY 2018.
  - STREAM LOCATIONS DOWNLOADED FROM CITY OF ASHEVILLE GIS HYDROGRAPHY DATA SET ON 4 SEPTEMBER 2018.
  - FENCE LINE FROM DRAWINGS OBTAINED 17 SEPTEMBER 2018 FROM AVCON, INC. OF CHARLOTTE, NC.
  - WETLANDS OBTAINED FROM THE U.S. FISH AND WILDLIFE SERVICE NATIONAL WETLANDS INVENTORY GEOGRAPHIC INFORMATION SYSTEM (GIS) DOWNLOADED ON 11/8/2020. REVISED WETLAND DELINEATION IS ONGOING AT THE TIME OF THIS DRAWING AND WILL BE UPDATED PRIOR TO CONSTRUCTION IF NEEDED. IMPACTS TO WETLANDS, IF ANY, WILL BE PERMITTED BY THE PROPERTY OWNER AS REQUIRED BY APPLICABLE STATE AND FEDERAL REGULATIONS.

**SOILS MAP LEGEND**

MAP UNIT SYMBOL	MAP UNIT NAME
CkC2	CLIFTON CLAY LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
CuB	CLIFTON-URBAN LAND COMPLEX, 2 TO 8 PERCENT SLOPES
CuC	CLIFTON-URBAN LAND COMPLEX, 8 TO 15 PERCENT SLOPES
CuD	CLIFTON-URBAN LAND COMPLEX, 15 TO 30 PERCENT SLOPES
EvD2	EVARD-COWEE COMPLEX, 15 TO 30 PERCENT SLOPES, MODERATELY ERODED
ExE	EVARD-COWEE-URBAN LAND COMPLEX, 30 TO 50 PERCENT SLOPES
TaB	TATE LOAM, 2 TO 8 PERCENT SLOPES
TaC	TATE LOAM, 8 TO 15 PERCENT SLOPES
TmB	TATE-URBAN LAND COMPLEX, 2 TO 8 PERCENT SLOPES
TmC	TATE-URBAN LAND COMPLEX, 8 TO 15 PERCENT SLOPES
Ud	UDORTHTENTS, LOAMY
UHE	UDORTHTENTS-URBAN LAND COMPLEX, 2 TO 50 PERCENT SLOPES

**FOR REVIEW PURPOSES ONLY**  
**PERMIT DRAWINGS - NOT FOR CONSTRUCTION**

1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP

1300 SOUTH MINT STREET, SUITE 300  
 CHARLOTTE, NC 28203 USA  
 PHONE: 704.227.0840  
 NC LICENSE NO.: C-3500

**TITLE:** EXISTING CONDITIONS

**PROJECT:** PERMIT DRAWINGS  
 AREA 1 PROPOSED CAP DESIGN

**SITE:** ASHEVILLE REGIONAL AIRPORT  
 FLETCHER, NORTH CAROLINA

DESIGN BY:	CSJ	DATE:	DECEMBER 2020
DRAWN BY:	MAF	PROJECT NO.:	GC7177
CHECKED BY:	CSJ	FILE:	GC6463.08P020
REVIEWED BY:	VMD	DRAWING NO.:	
APPROVED BY:	CSJ		

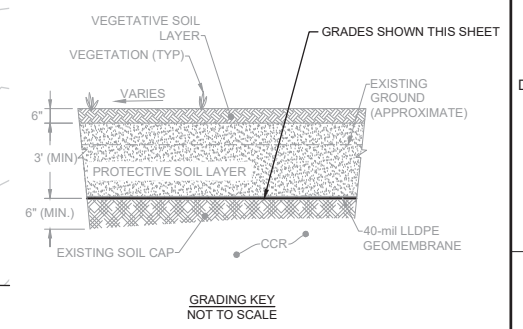
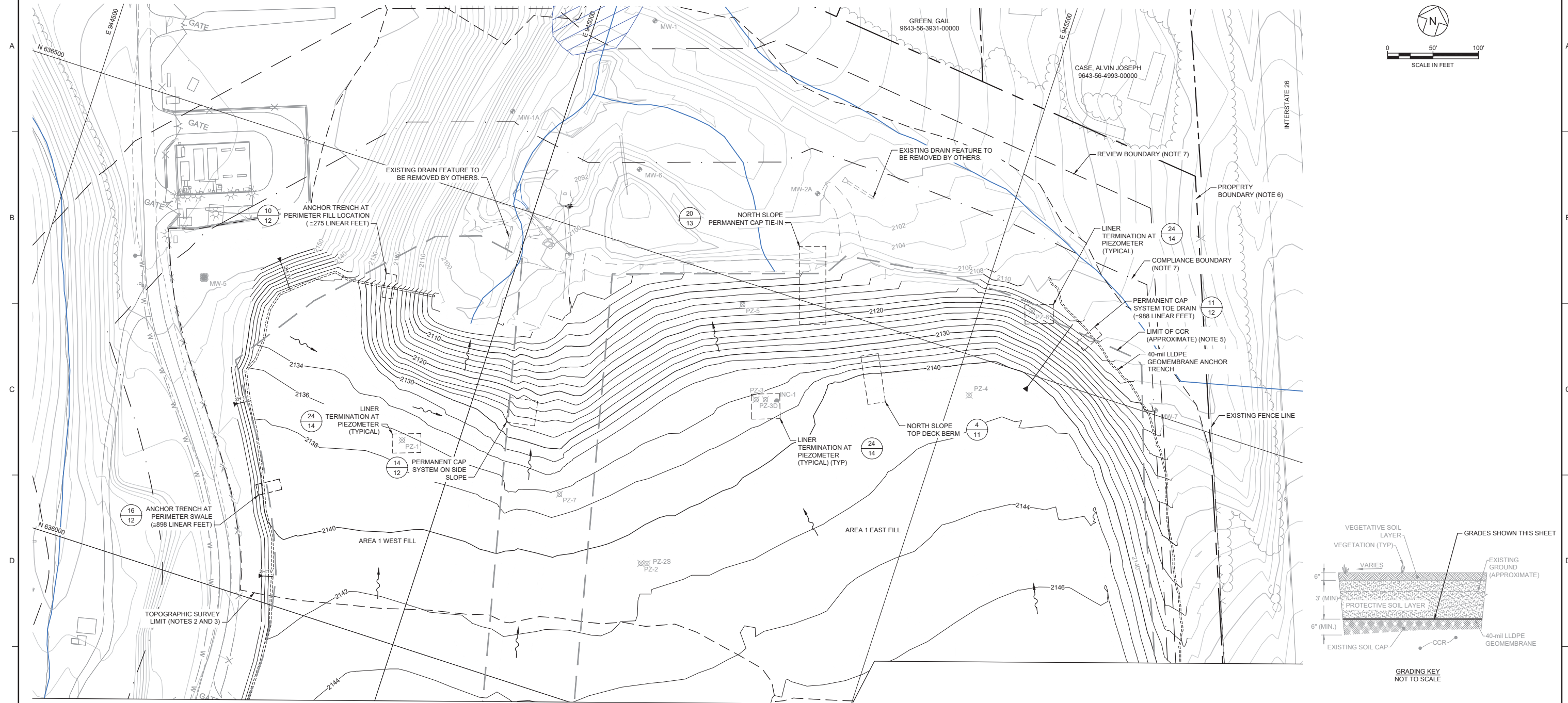
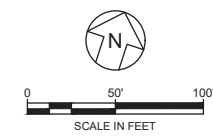
11 December 2020  
 DATE

2 OF 16









**LEGEND**

	PROPERTY (APPROXIMATE) (NOTE 4)		SIGN
	REVIEW BOUNDARY (NOTE 7)		POST
	COMPLIANCE BOUNDARY (NOTE 7)		GPS CONTROL POINT
	TOPOGRAPHIC SURVEY LIMIT (NOTES 2 AND 3)		DROP INLET / CATCH BASIN
	LIMIT OF CCR (APPROXIMATE) (NOTE 5)		DRAINAGE STRUCTURE
	STREAMS (NOTE 8)		DRAINAGE OUTLET HEADWALL
	WETLANDS (NOTE 11)		EXISTING WATER LINE
	FENCE LINE (NOTES 9 AND 10)		HYDRANT
	UNPAVED ROAD/TRAILS		PIEZOMETER
	WATER		MONITORING WELL
	TREE LINE		INCLINOMETER
	BRUSH LINE		PROPOSED FINISH GRADE CONTOUR
	EXISTING ELEVATION CONTOUR		PROPOSED GRADING BREAKLINE
	EXISTING SPOT ELEVATION		PROPOSED DRAINAGE FLOW ARROW
	POWER POLE		PROPOSED 40-mil LLDPE ANCHOR TRENCH
	RUNWAY LIGHT		
	LIGHT POLE		

MATCH LINE DRAWING 5

**NOTES:**

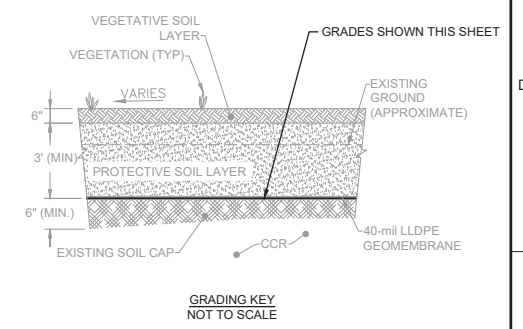
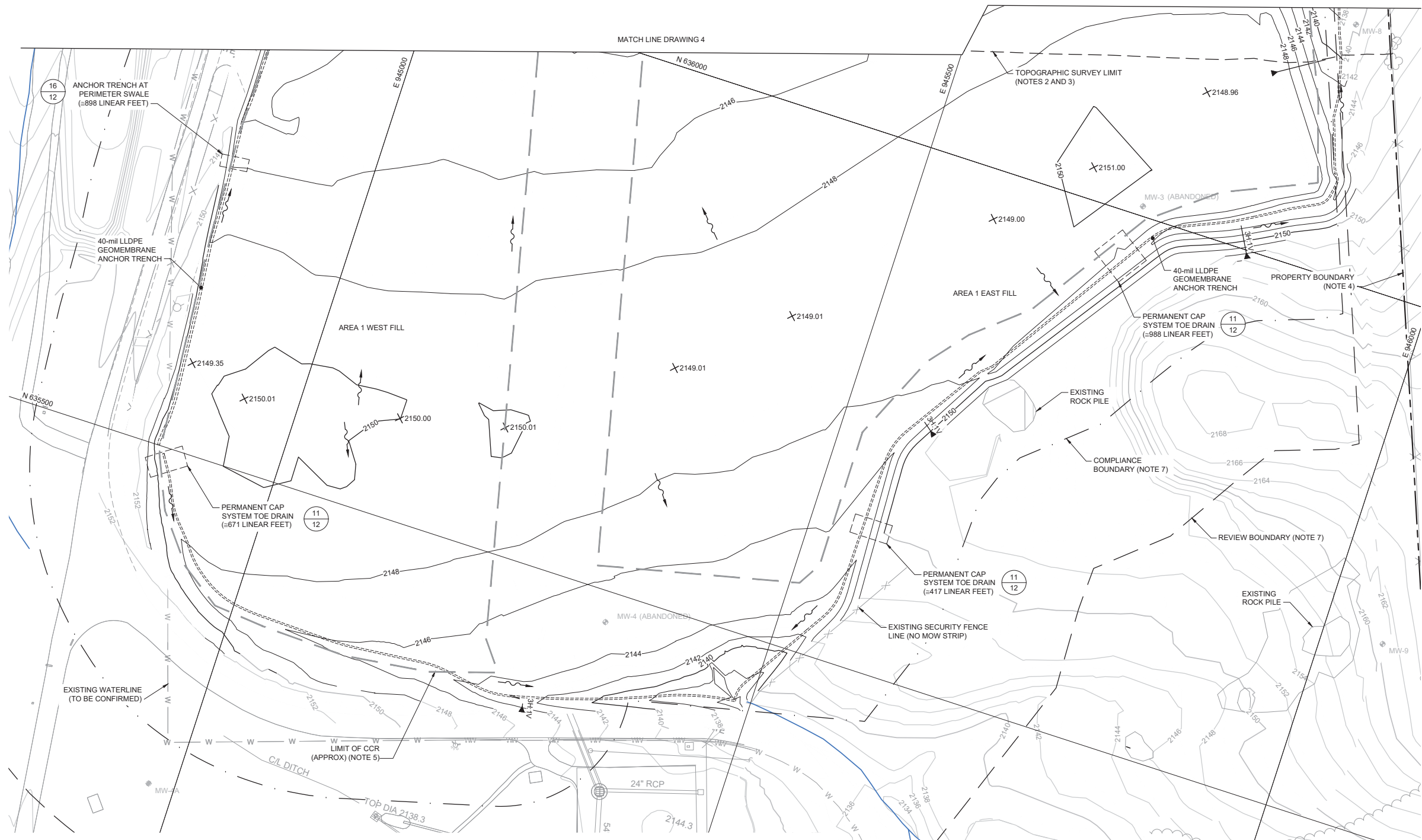
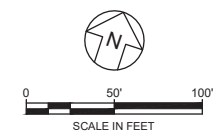
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- LIMITS OF CCR SCALED FROM HISTORICAL DOCUMENTS, SHOULD BE CONSIDERED APPROXIMATE, AND SHOULD BE FIELD VERIFIED. CONTRACTOR SHALL NOT INSTALL ANCHOR TRENCH WITHOUT COMPLETION OF CCR DELINEATION.
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- STREAM LOCATIONS DOWNLOADED FROM CITY OF ASHEVILLE GIS HYDROGRAPHY DATA SET ON 4 SEPTEMBER 2018.
- FENCE LINE FROM DRAWINGS OBTAINED 17 SEPTEMBER 2018 FROM AVCON, INC. OF CHARLOTTE, NC.
- CONTRACTOR SHALL REMOVE AND REPLACE EXISTING SECURITY/WILDLIFE FENCE AND MOW STRIP DURING INSTALLATION OF THE PERMANENT CAP SYSTEM. FENCE LINE NOT SHOWN ON SUBGRADE FOR CLARITY.
- WETLANDS OBTAINED FROM THE U.S. FISH AND WILDLIFE SERVICE NATIONAL WETLANDS INVENTORY GEOGRAPHIC INFORMATION SYSTEM (GIS) DOWNLOADED ON 11/8/2020. REVISED WETLAND DELINEATION IS ONGOING AT THE TIME OF THIS DRAWING AND WILL BE UPDATED PRIOR TO CONSTRUCTION IF NEEDED. IMPACTS TO WETLANDS, IF ANY, WILL BE PERMITTED BY THE PROPERTY OWNER AS REQUIRED BY APPLICABLE STATE AND FEDERAL REGULATIONS.

M:\PROJECTS\2020\11-DEC-20\11-12-AM\K:\PROJECTS\2020\11-DEC-20\11-12-AM\CONCEPTUAL CAP DESIGN\G046348\DWG\G046348.DWG

**FOR REVIEW PURPOSES ONLY  
PERMIT DRAWINGS - NOT FOR CONSTRUCTION**

1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP
1300 SOUTH MINT STREET, SUITE 300 CHARLOTTE, NC 28203 USA PHONE: 704.227.0840 NC LICENSE NO.: C-3500				
<b>TITLE:</b> SUBGRADE GRADING PLAN I				
<b>PROJECT:</b> PERMIT DRAWINGS AREA 1 PROPOSED CAP DESIGN				
<b>SITE:</b> ASHEVILLE REGIONAL AIRPORT FLETCHER, NORTH CAROLINA				
		DESIGN BY: CSJ	DATE: DECEMBER 2020	
		DRAWN BY: MAF	PROJECT NO.: GC7177	
		CHECKED BY: CSJ	FILE: GC6463.08P040	
		REVIEWED BY: VMD	DRAWING NO.: 4 OF 16	
11 December 2020 DATE		APPROVED BY: CSJ		





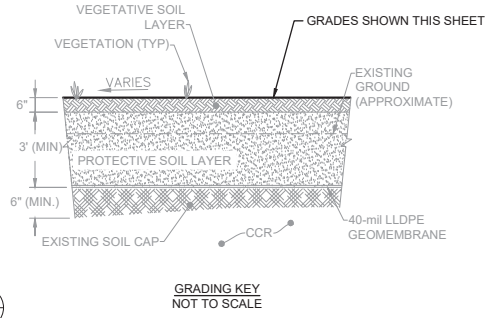
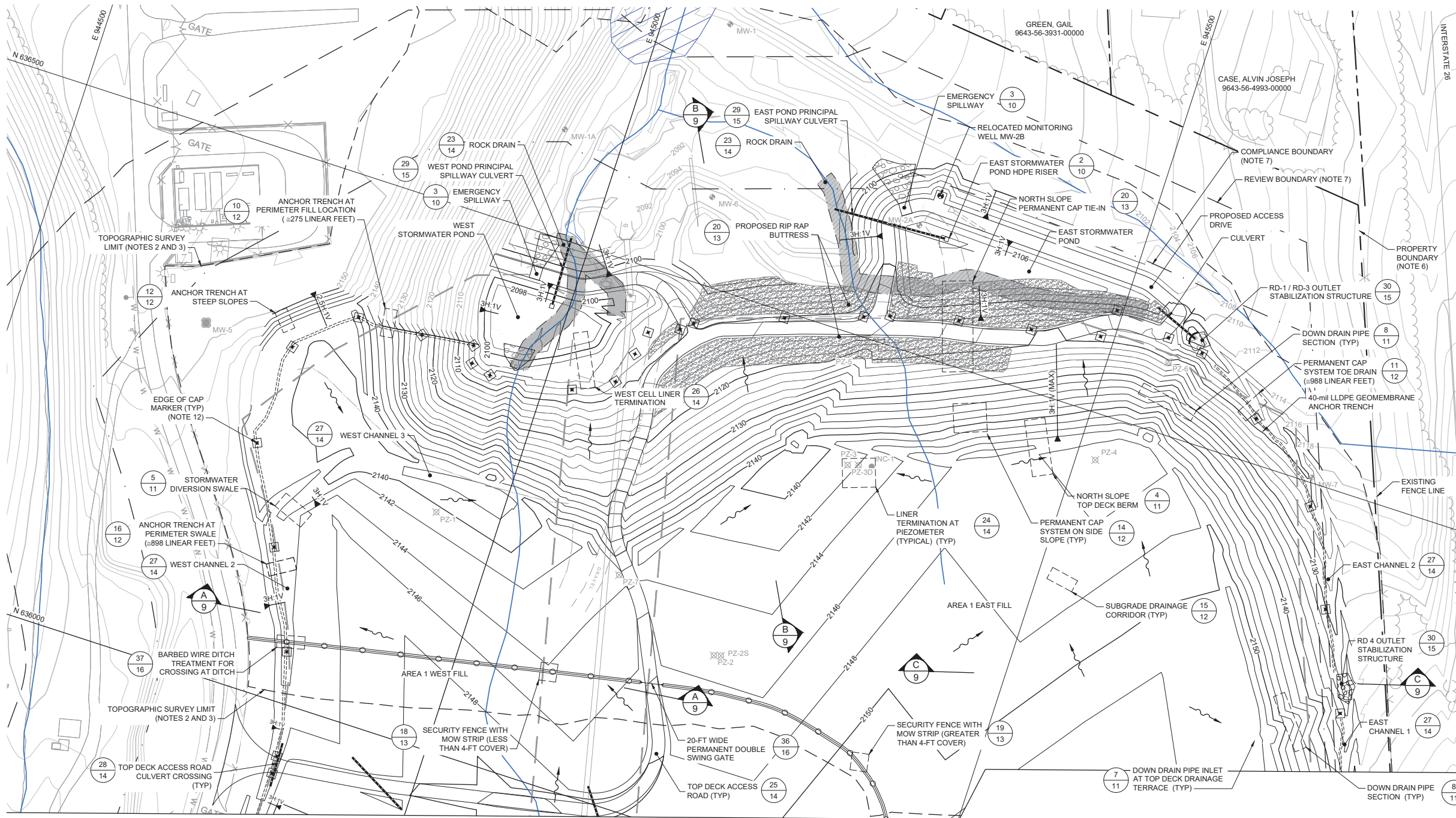
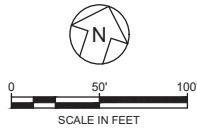
LEGEND	
	PROPERTY (APPROXIMATE) (NOTE 4)
	REVIEW BOUNDARY (NOTE 7)
	COMPLIANCE BOUNDARY (NOTE 7)
	TOPOGRAPHIC SURVEY LIMIT (NOTES 2 AND 3)
	LIMIT OF CCR (APPROXIMATE) (NOTE 5)
	STREAMS (NOTE 8)
	WETLANDS (NOTE 11)
	FENCE LINE (NOTES 9 AND 10)
	UNPAVED ROAD/TRAILS
	WATER
	TREE LINE
	BRUSH LINE
	EXISTING ELEVATION CONTOUR
	EXISTING SPOT ELEVATION
	POWER POLE
	RUNWAY LIGHT
	LIGHT POLE
	SIGN
	POST
	GPS CONTROL POINT
	DROP INLET / CATCH BASIN
	DRAINAGE STRUCTURE
	DRAINAGE OUTLET HEADWALL
	EXISTING WATER LINE
	HYDRANT
	PIEZOMETER
	MONITORING WELL
	INCLINOMETER
	PROPOSED FINISH GRADE CONTOUR
	PROPOSED GRADING BREAKLINE
	PROPOSED DRAINAGE FLOW ARROW
	PROPOSED 40-mil LLDPE ANCHOR TRENCH

- NOTES:
- COORDINATES PROVIDED IN NORTH CAROLINA STATE PLANE IN TERMS OF NORTH AMERICAN DATUM OF 1983 (NAD83) AND ELEVATIONS IN TERMS OF FT NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
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  - PROPERTY BOUNDARY DELINEATED FROM SANBORN, LLC AND SHALL BE CONFIRMED BY THE CONTRACTOR.
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  - WETLANDS OBTAINED FROM THE U.S. FISH AND WILDLIFE SERVICE NATIONAL WETLANDS INVENTORY GEOGRAPHIC INFORMATION SYSTEM (GIS) DOWNLOADED ON 11/8/2020. REVISED WETLAND DELINEATION IS ONGOING AT THE TIME OF THIS DRAWING AND WILL BE UPDATED PRIOR TO CONSTRUCTION IF NEEDED. IMPACTS TO WETLANDS, IF ANY, WILL BE PERMITTED BY THE PROPERTY OWNER AS REQUIRED BY APPLICABLE STATE AND FEDERAL REGULATIONS.

1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP
TITLE: SUBGRADE GRADING PLAN II				
PROJECT: PERMIT DRAWINGS AREA 1 PROPOSED CAP DESIGN				
SITE: ASHEVILLE REGIONAL AIRPORT FLETCHER, NORTH CAROLINA				
DESIGN BY: CSJ		DATE: DECEMBER 2020		
DRAWN BY: MAF		PROJECT NO.: GC7177		
CHECKED BY: CSJ		FILE: GC6463.08P050		
REVIEWED BY: VMD		DRAWING NO.: 5 OF 16		
APPROVED BY: CSJ		DATE: 11 December 2020		

FOR REVIEW PURPOSES ONLY  
PERMIT DRAWINGS - NOT FOR CONSTRUCTION





**LEGEND**

---	PROPERTY (APPROXIMATE) (NOTES 4 AND 6)	△	GPS CONTROL POINT
---	REVIEW BOUNDARY (NOTE 7)	⊗	DROP INLET / CATCH BASIN
---	COMPLIANCE BOUNDARY (NOTE 7)	○	DRAINAGE STRUCTURE
---	TOPOGRAPHIC SURVEY LIMIT (NOTES 2 AND 3)	○	DRAINAGE OUTLET HEADWALL
---	LIMIT OF CCR (APPROXIMATE) (NOTE 5)	— W —	EXISTING WATER LINE
---	STREAMS (NOTE 8)	⊗	HYDRANT
---	WETLANDS (NOTE 11)	⊗ PZ-2	PIEZOMETER
---	FENCE LINE (NOTES 9 AND 10)	⊗ MW-3	MONITORING WELL
---	WATER	○	INCLINOMETER
---	TREE LINE	— 2145 —	PROPOSED FINISH GRADE CONTOUR
---	BRUSH LINE	---	PROPOSED GRADING BREAKLINE
---	EXISTING ELEVATION CONTOUR	---	PROPOSED DRAINAGE FLOW ARROW
×	EXISTING SPOT ELEVATION	---	PROPOSED RIP RAP BUTTRESS
○	POWER POLE	---	PROPOSED 40-mil LLDPE ANCHOR TRENCH
○	RUNWAY LIGHT	---	PROPOSED SPOT ELEVATION
○	LIGHT POLE	---	PROPOSED STORMWATER DRAIN PIPE
+	SIGN	---	PROPOSED WILDLIFE FENCE
○	POST	---	PROPOSED ROCK DRAIN
		---	PROPOSED EDGE OF CAP MARKER (NOTE 12)

- NOTES:**
- COORDINATES PROVIDED IN NORTH CAROLINA STATE PLANE IN TERMS OF NORTH AMERICAN DATUM OF 1983 (NAD83) AND ELEVATIONS IN TERMS OF FT NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
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  - THE EDGE OF CAP MARKERS SHALL BE PLACED ON 100-FT (MAXIMUM) INTERVALS, AND WHERE INDICATED, TO DELINEATE THE CAP BOUNDARY. THE MARKERS SHALL BE 4"x4" PRESSURE-TREATED TIMBER POST (OR APPROVED EQUIVALENT) SHALL EXTEND 2 FT (MIN) ABOVE GROUND AND BE PAINTED YELLOW.

1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP

**Geosyntec consultants** OF NC, PC  
1300 SOUTH MINT STREET, SUITE 300  
CHARLOTTE, NC 28203 USA  
PHONE: 704.227.0840  
NC LICENSE NO.: C-3500

**DUKE ENERGY PROGRESS**

**TITLE:** FINAL GRADING PLAN I

**PROJECT:** PERMIT DRAWINGS AREA 1 PROPOSED CAP DESIGN

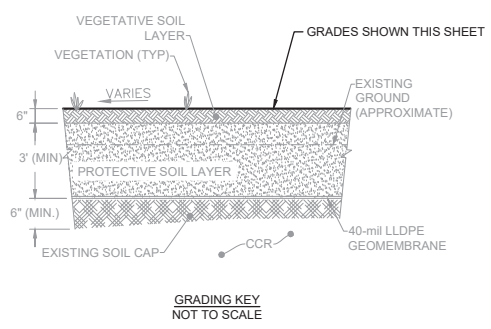
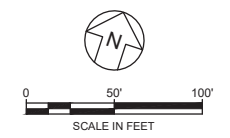
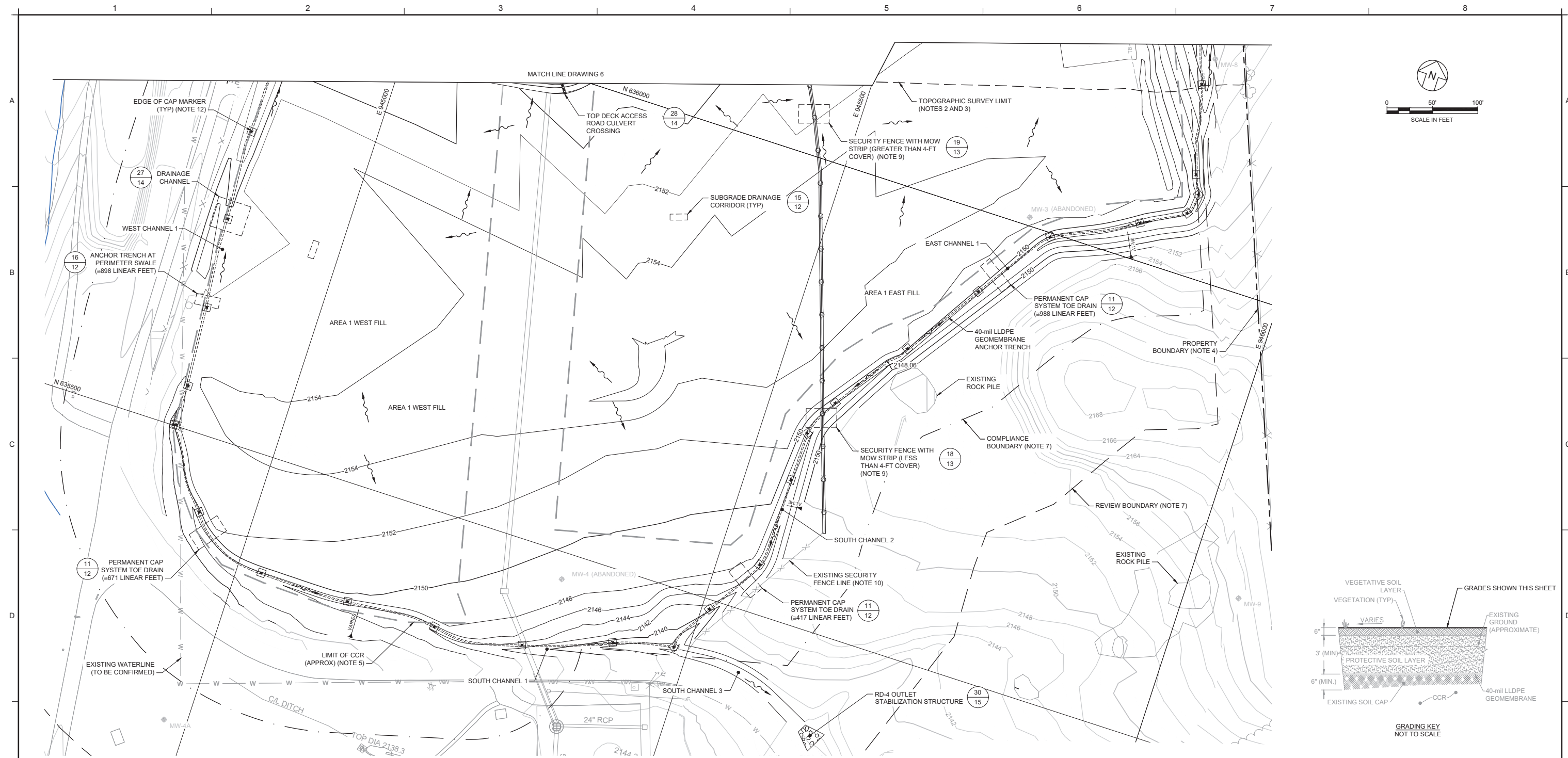
**SITE:** ASHEVILLE REGIONAL AIRPORT FLETCHER, NORTH CAROLINA

DESIGN BY: CSJ DATE: DECEMBER 2020  
DRAWN BY: MAF PROJECT NO.: GC7177  
CHECKED BY: CSJ FILE: GC6463.08P060  
REVIEWED BY: VMD DRAWING NO.: 6 OF 16  
APPROVED BY: CSJ

11 December 2020 DATE

**FOR REVIEW PURPOSES ONLY  
PERMIT DRAWINGS - NOT FOR CONSTRUCTION**





**LEGEND**

	PROPERTY (APPROXIMATE) (NOTES 4 AND 6)		GPS CONTROL POINT
	REVIEW BOUNDARY (NOTE 7)		DROP INLET / CATCH BASIN
	COMPLIANCE BOUNDARY (NOTE 7)		DRAINAGE STRUCTURE
	TOPOGRAPHIC SURVEY LIMIT (NOTES 2 AND 3)		DRAINAGE OUTLET HEADWALL
	LIMIT OF CCR (APPROXIMATE) (NOTE 5)		EXISTING WATER LINE
	STREAMS (NOTE 8)		HYDRANT
	WETLANDS (NOTE 11)		PIEZOMETER
	FENCE LINE (NOTES 9 AND 10)		MONITORING WELL
	WATER		INCLINOMETER
	TREE LINE		PROPOSED FINISH GRADE CONTOUR
	BRUSH LINE		PROPOSED GRADING BREAKLINE
	EXISTING ELEVATION CONTOUR		PROPOSED DRAINAGE FLOW ARROW
	EXISTING SPOT ELEVATION		PROPOSED RIP RAP BUTTRESS
	POWER POLE		PROPOSED 40-mil LLDPE ANCHOR TRENCH
	RUNWAY LIGHT		PROPOSED SPOT ELEVATION
	LIGHT POLE		PROPOSED STORMWATER DRAIN PIPE
	SIGN		PROPOSED WILDLIFE FENCE
	POST		PROPOSED EDGE OF CAP MARKER (NOTE 12)

**NOTES:**

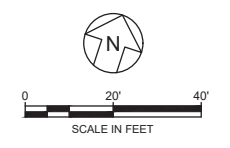
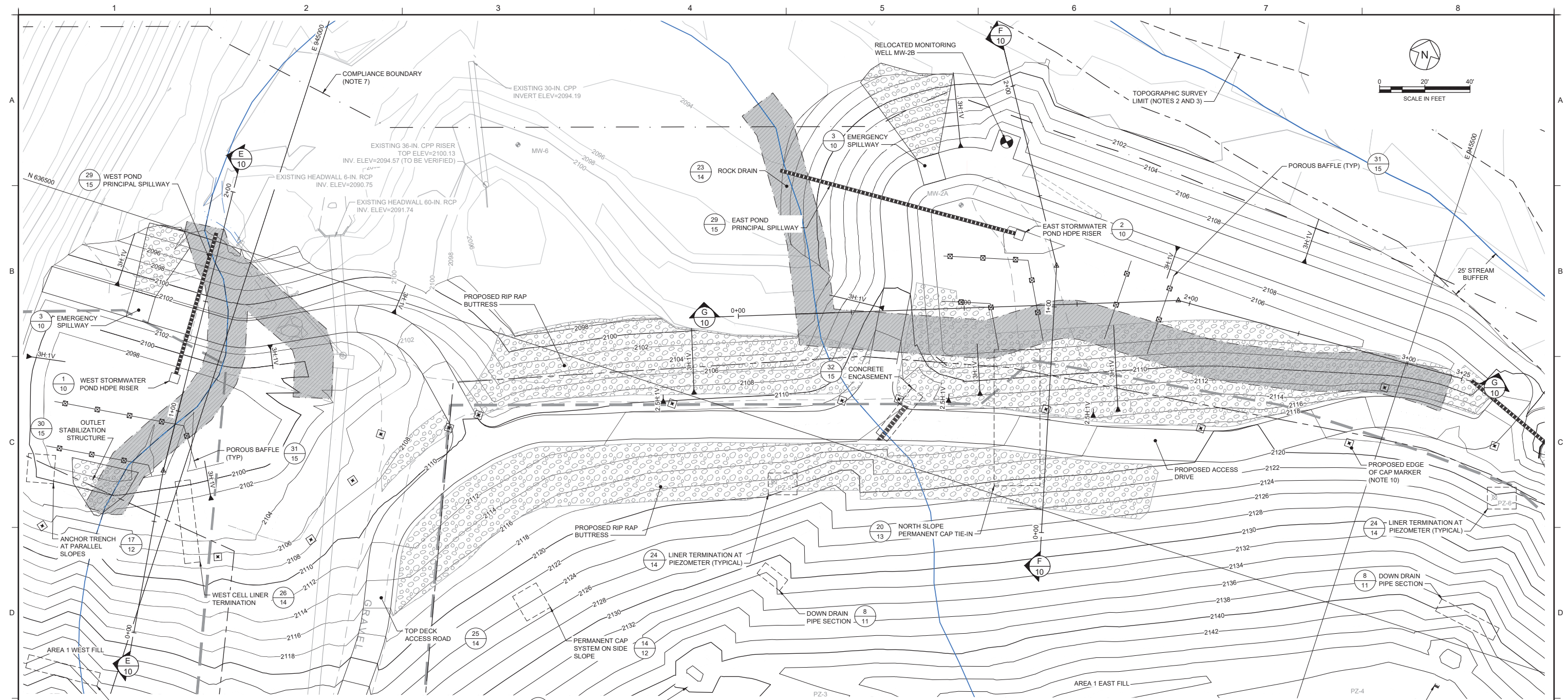
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- PROPERTY BOUNDARY DELINEATED FROM SANBORN, LLC AND SHALL BE CONFIRMED BY THE CONTRACTOR.
- LIMITS OF CCR SCALED FROM HISTORICAL DOCUMENTS, SHOULD BE CONSIDERED APPROXIMATE, AND SHOULD BE FIELD VERIFIED. CONTRACTOR SHALL NOT INSTALL ANCHOR TRENCH WITHOUT COMPLETION OF CCR DELINEATION.
- PROPERTY LINES OBTAINED FROM BUNCOMBE COUNTY GEOGRAPHIC INFORMATION SYSTEM (GIS) ON 25 JULY 2018.
- REVIEW AND COMPLIANCE BOUNDARIES PROVIDED BY SYNTERRA CORPORATION ON 16 JULY 2018.
- STREAM LOCATIONS DOWNLOADED FROM CITY OF ASHEVILLE GIS HYDROGRAPHY DATA SET ON 4 SEPTEMBER 2018.
- CONTRACTOR SHALL REMOVE AND REPLACE EXISTING SECURITY/WILDLIFE FENCE AND MOW STRIP DURING INSTALLATION OF THE PERMANENT CAP SYSTEM.
- FENCE LINE FROM DRAWINGS OBTAINED 17 SEPTEMBER 2018 FROM AVCON, INC. OF CHARLOTTE, NC.
- WETLANDS OBTAINED FROM THE U.S. FISH AND WILDLIFE SERVICE NATIONAL WETLANDS INVENTORY GEOGRAPHIC INFORMATION SYSTEM (GIS) DOWNLOADED ON 11/8/2020. REVISED WETLAND DELINEATION IS ONGOING AT THE TIME OF THIS DRAWING AND WILL BE UPDATED PRIOR TO CONSTRUCTION IF NEEDED. IMPACTS TO WETLANDS, IF ANY, WILL BE PERMITTED BY THE PROPERTY OWNER AS REQUIRED BY APPLICABLE STATE AND FEDERAL REGULATIONS.
- THE EDGE OF CAP MARKERS SHALL BE PLACED ON 100-FT (MAXIMUM) INTERVALS, AND WHERE INDICATED, TO DELINEATE THE CAP BOUNDARY. THE MARKERS SHALL BE 4"x4" PRESSURE-TREATED TIMBER POST (OR APPROVED EQUIVALENT) SHALL EXTEND 2 FT (MIN) ABOVE GROUND AND BE PAINTED YELLOW.

**FOR REVIEW PURPOSES ONLY  
PERMIT DRAWINGS - NOT FOR CONSTRUCTION**

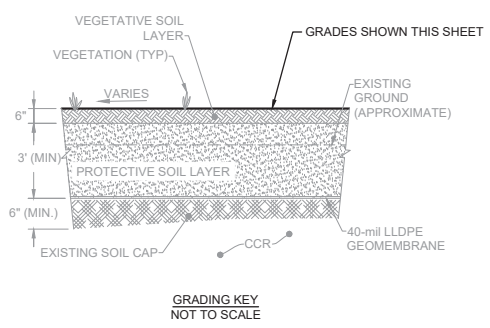
1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP
<p>1300 SOUTH MINT STREET, SUITE 300 CHARLOTTE, NC 28203 USA PHONE: 704.227.0840 NC LICENSE NO.: C-3500</p>				
TITLE:		FINAL GRADING PLAN II		
PROJECT:		PERMIT DRAWINGS AREA 1 PROPOSED CAP DESIGN		
SITE:		ASHEVILLE REGIONAL AIRPORT FLETCHER, NORTH CAROLINA		
 DATE: 11 December 2020		DESIGN BY: CSJ	DATE: DECEMBER 2020	
		DRAWN BY: MAF	PROJECT NO.: GC7177	
		CHECKED BY: CSJ	FILE: GC6463.08P070	
		REVIEWED BY: VMD	DRAWING NO.: 7 OF 16	
		APPROVED BY: CSJ		

M:\BIRSDO-11-00-20-11-147 AM  
 K:\PROJECTS\DUKE ENERGY\ASHEVILLE AIRPORT\CONCEPTUAL CAP DESIGN\GIS\ASHEVILLE\G046308P070.DWG





LEGEND	
	PROPERTY (APPROXIMATE) (NOTES 4 AND 6)
	REVIEW BOUNDARY (NOTE 7)
	COMPLIANCE BOUNDARY (NOTE 7)
	TOPOGRAPHIC SURVEY LIMIT (NOTES 2 AND 3)
	LIMIT OF CCR (APPROXIMATE) (NOTE 5)
	STREAMS (NOTE 8)
	WETLANDS (NOTE 9)
	FENCE LINE
	UNPAVED ROAD/TRAILS
	WATER
	TREE LINE
	BRUSH LINE
	EXISTING ELEVATION CONTOUR
	EXISTING SPOT ELEVATION
	POWER POLE
	RUNWAY LIGHT
	LIGHT POLE
	SIGN
	POST
	GPS CONTROL POINT
	DROP INLET / CATCH BASIN
	DRAINAGE STRUCTURE
	DRAINAGE OUTLET HEADWALL
	EXISTING WATER LINE
	HYDRANT
	PIEZOMETER
	MONITORING WELL
	INCLINOMETER
	PROPOSED FINISH GRADE CONTOUR
	PROPOSED GRADING BREAKLINE
	PROPOSED DRAINAGE FLOW ARROW
	PROPOSED RIP RAP BUTTRESS
	PROPOSED 40-mil LLDPE ANCHOR TRENCH
	PROPOSED SPOT ELEVATION
	PROPOSED STORMWATER DRAIN PIPE
	PROPOSED EDGE OF CAP MARKER (NOTE 10)



- NOTES:
- COORDINATES PROVIDED IN NORTH CAROLINA STATE PLANE IN TERMS OF NORTH AMERICAN DATUM OF 1983 (NAD83) AND ELEVATIONS IN TERMS OF FT NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
  - TOPOGRAPHIC CONTOURS PROVIDED BY MCKIM AND CREED BASED ON SURVEYS DATED 4 OCTOBER 2017 AND 1 NOVEMBER 2017.
  - SURVEY INFORMATION OUTSIDE THE LIMITS OF THE MCKIM AND CREED SURVEYS PROVIDED BY AERIAL PHOTOGRAPHY FLOWN 11 DECEMBER 2009 AND GROUND CONTROL SURVEYS PREPARED BY SANBORN, LLC (UNKNOWN DATE).
  - PROPERTY BOUNDARY DELINEATED FROM SANBORN, LLC AND SHALL BE CONFIRMED BY THE CONTRACTOR.
  - LIMITS OF CCR SCALED FROM HISTORICAL DOCUMENTS, SHOULD BE CONSIDERED APPROXIMATE, AND SHOULD BE FIELD VERIFIED. CONTRACTOR SHALL NOT INSTALL ANCHOR TRENCH WITHOUT COMPLETION OF CCR DELINEATION.
  - PROPERTY LINES OBTAINED FROM BUNCOMBE COUNTY GEOGRAPHIC INFORMATION SYSTEM (GIS) ON 25 JULY 2018.
  - REVIEW AND COMPLIANCE BOUNDARIES PROVIDED BY SYNTERRA CORPORATION ON 16 JULY 2018.
  - STREAM LOCATIONS DOWNLOADED FROM CITY OF ASHEVILLE GIS HYDROGRAPHY DATA SET ON 4 SEPTEMBER 2018.
  - WETLANDS OBTAINED FROM THE U.S. FISH AND WILDLIFE SERVICE NATIONAL WETLANDS INVENTORY GEOGRAPHIC INFORMATION SYSTEM (GIS) DOWNLOADED ON 11/8/2020. REVISED WETLAND DELINEATION IS ONGOING AT THE TIME OF THIS DRAWING AND WILL BE UPDATED PRIOR TO CONSTRUCTION IF NEEDED. IMPACTS TO WETLANDS, IF ANY, WILL BE PERMITTED BY THE PROPERTY OWNER AS REQUIRED BY APPLICABLE STATE AND FEDERAL REGULATIONS.
  - THE EDGE OF CAP MARKERS SHALL BE PLACED ON 100-FT (MAXIMUM) INTERVALS, AND WHERE INDICATED, TO DELINEATE THE CAP BOUNDARY. THE MARKERS SHALL BE 4"x4" PRESSURE-TREATED TIMBER POST (OR APPROVED EQUIVALENT) SHALL EXTEND 2 FT (MIN) ABOVE GROUND AND BE PAINTED YELLOW.

FOR REVIEW PURPOSES ONLY  
 PERMIT DRAWINGS - NOT FOR CONSTRUCTION

1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP

1300 SOUTH MINT STREET, SUITE 300  
 CHARLOTTE, NC 28203 USA  
 PHONE: 704.227.0840  
 NC LICENSE NO.: C-3500

TITLE: **STORMWATER POND PLAN**

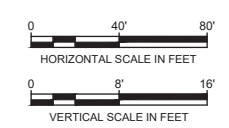
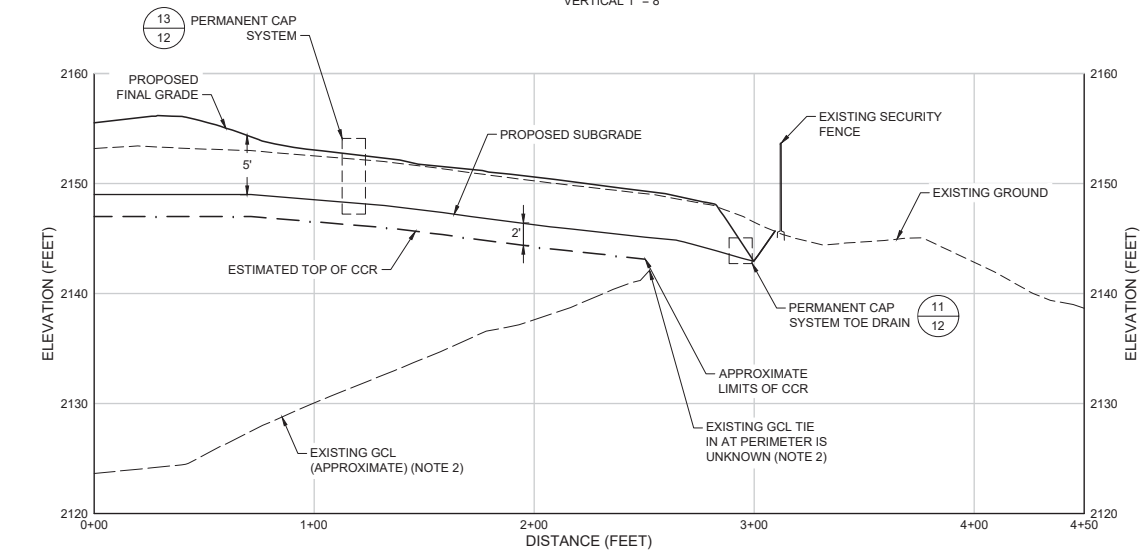
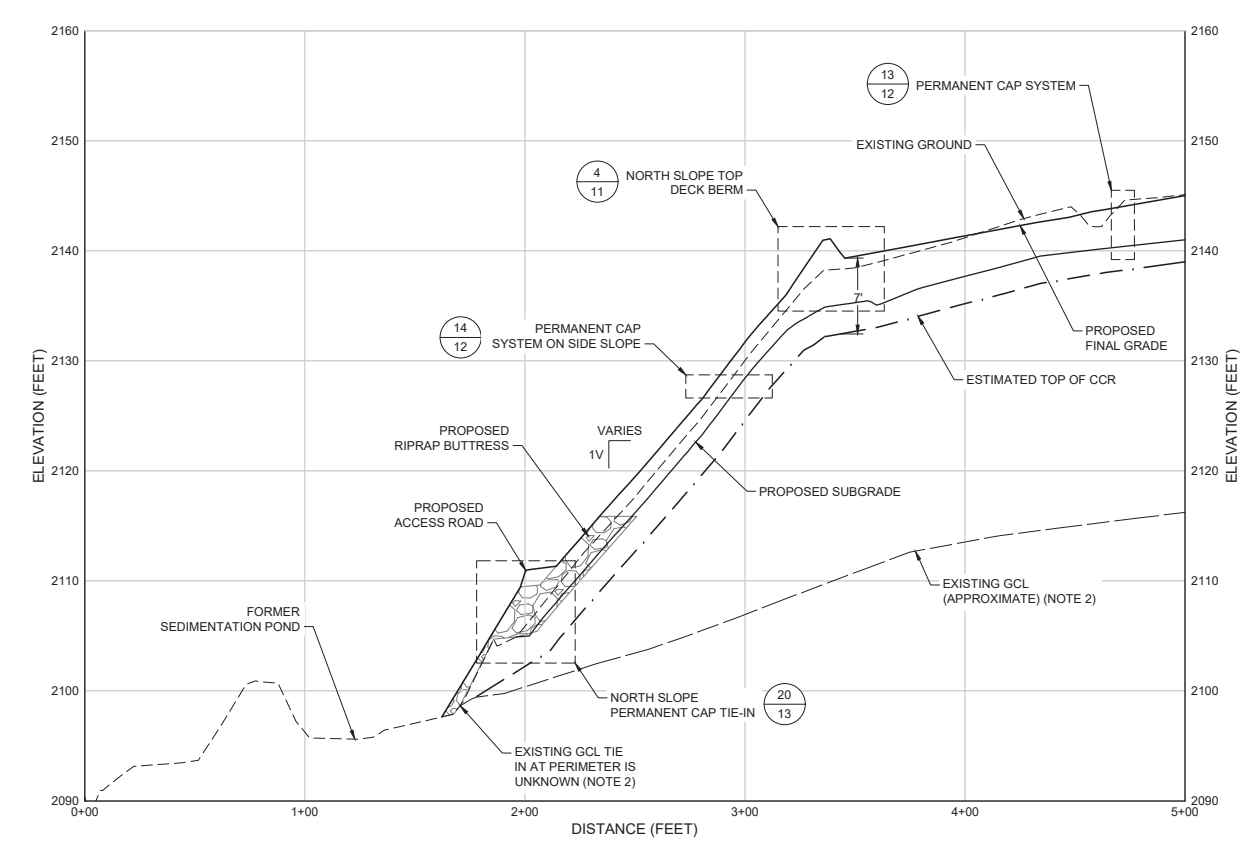
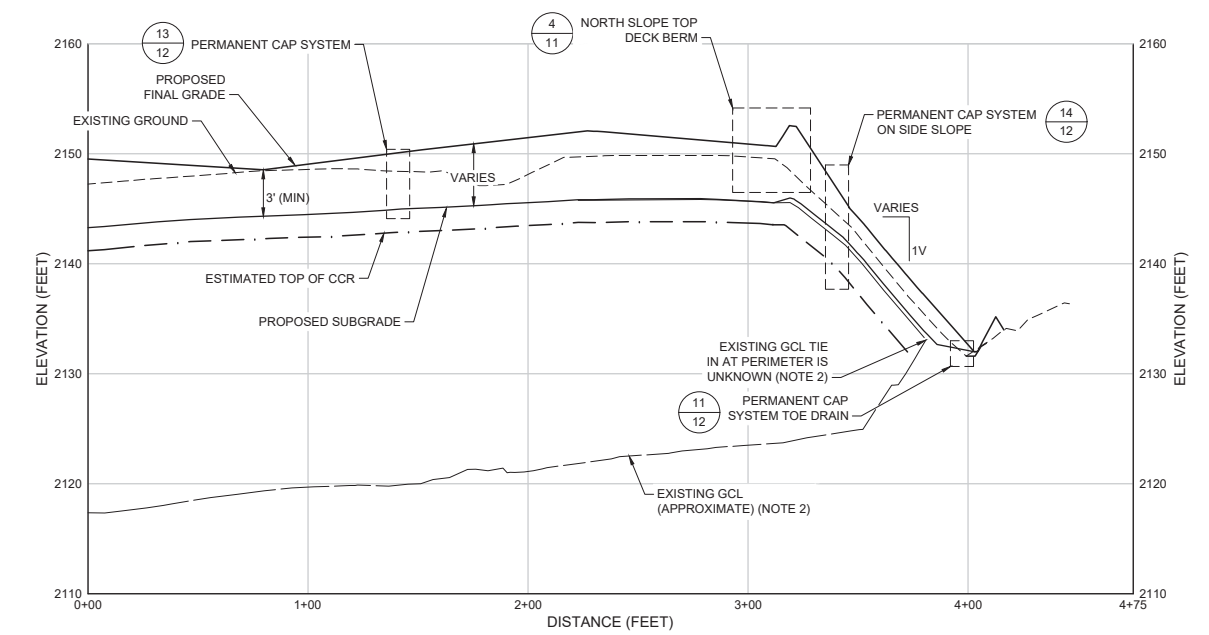
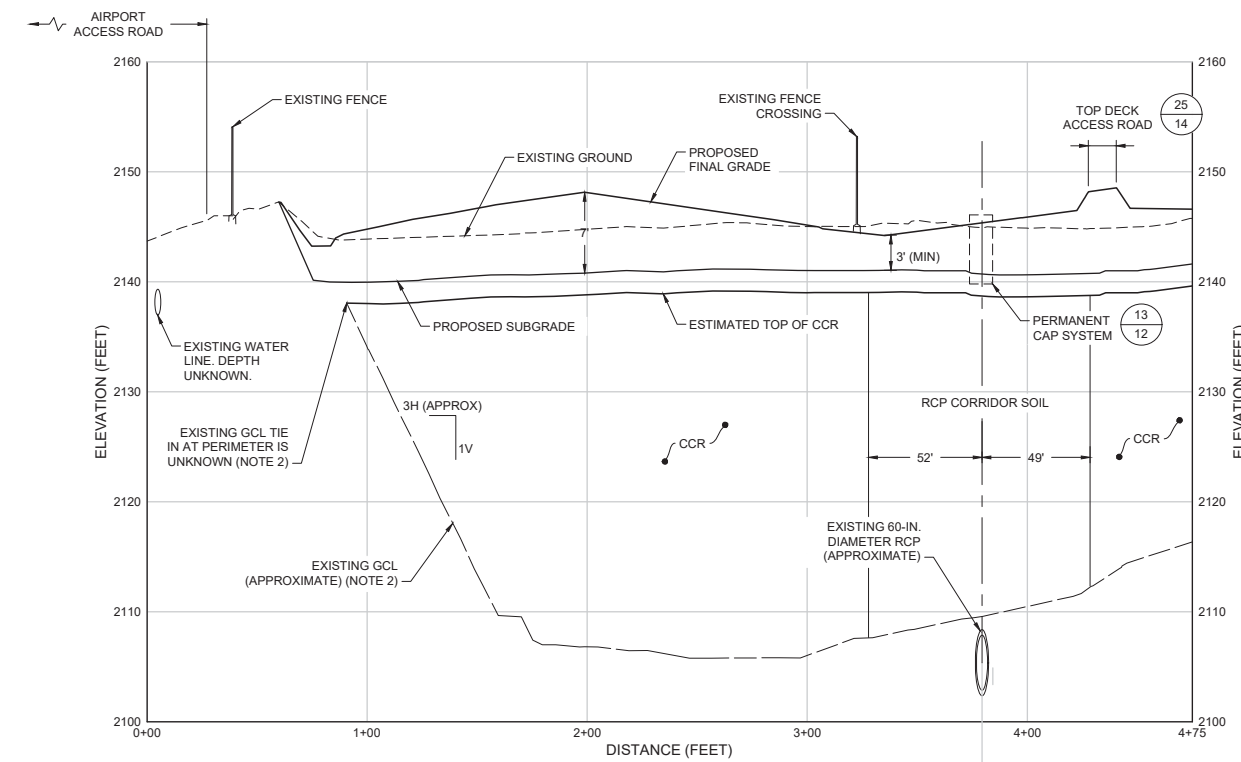
PROJECT: **PERMIT DRAWINGS  
 AREA 1 PROPOSED CAP DESIGN**

SITE: **ASHEVILLE REGIONAL AIRPORT  
 FLETCHER, NORTH CAROLINA**

DESIGN BY:	CSJ	DATE:	DECEMBER 2020
DRAWN BY:	MAF	PROJECT NO.:	GC7177
CHECKED BY:	CSJ	FILE:	GC6463.08P080
REVIEWED BY:	VMD	DRAWING NO.:	8 OF 16
APPROVED BY:	CSJ		

11 December 2020  
DATE





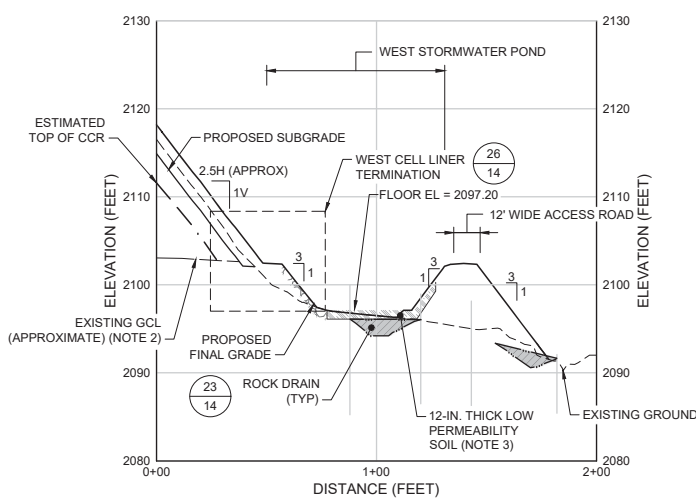
- NOTES:
- COORDINATES PROVIDED IN NORTH CAROLINA STATE PLANE IN TERMS OF NORTH AMERICAN DATUM OF 1983 (NAD83) AND ELEVATIONS IN TERMS OF FT NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
  - EXISTING GCL INFORMATION INTERPRETED FROM PLANS BY VAUGHAN ENGINEERING OF MADISONVILLE, KENTUCKY TITLED "CHARAH-ASHEVILLE REGIONAL AIRPORT COAL COMBUSTION PRODUCT ENGINEERED FILL; MARCH 2010 UPDATE" OBTAINED DECEMBER 2012 FROM CHARAH INC.

FOR REVIEW PURPOSES ONLY  
PERMIT DRAWINGS - NOT FOR CONSTRUCTION

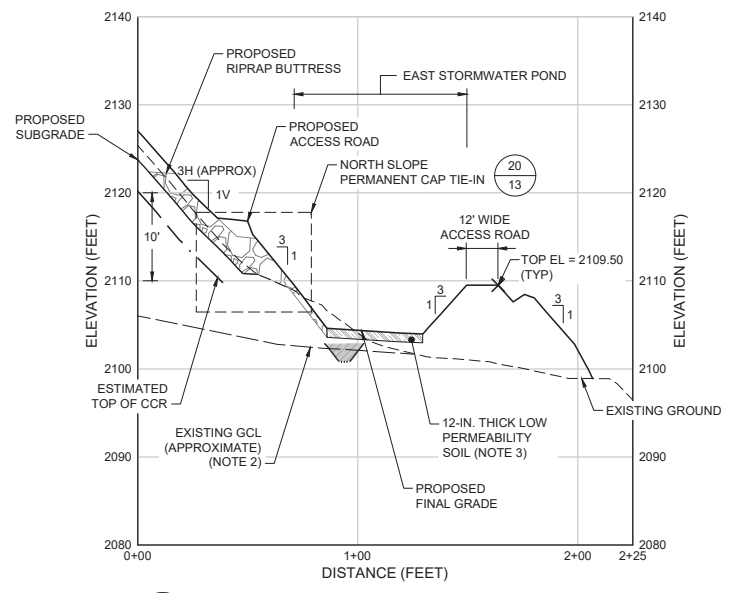
1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP
1300 SOUTH MINT STREET, SUITE 300 CHARLOTTE, NC 28203 USA PHONE: 704.227.0840 NC LICENSE NO.: C-3500				
TITLE:		CAP CROSS SECTIONS		
PROJECT:		PERMIT DRAWINGS AREA 1 PROPOSED CAP DESIGN		
SITE:		ASHEVILLE REGIONAL AIRPORT FLETCHER, NORTH CAROLINA		
DESIGN BY: CSJ		DATE: DECEMBER 2020		
DRAWN BY: MAF		PROJECT NO.: GC7177		
CHECKED BY: CSJ		FILE: GC6463.08P090		
REVIEWED BY: VMD		DRAWING NO.:		
APPROVED BY: CSJ		9 OF 16		

M:\B\2020-11-09-20-11-19 AM  
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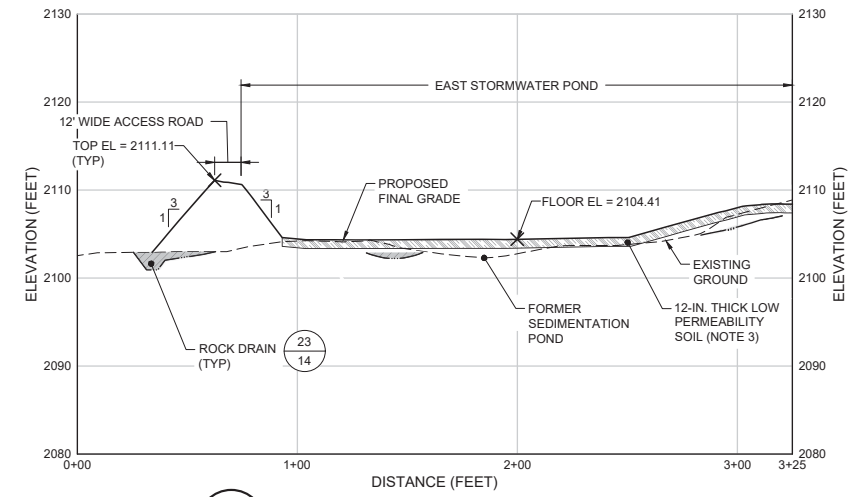




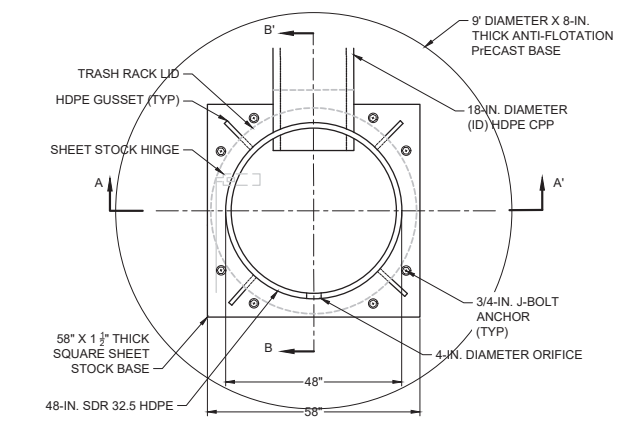
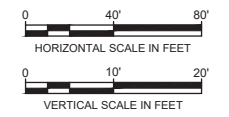
**SECTION 8**  
**STORMWATER POND SECTION E-E**  
 SCALE: HORIZONTAL 1" = 40'  
 VERTICAL 1" = 10'



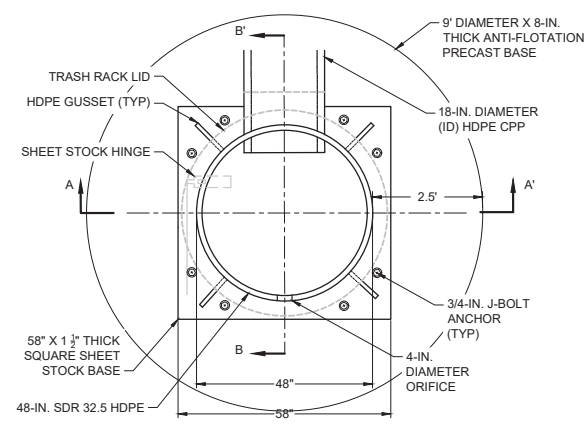
**SECTION 8**  
**STORMWATER POND SECTION F-F**  
 SCALE: HORIZONTAL 1" = 40'  
 VERTICAL 1" = 10'



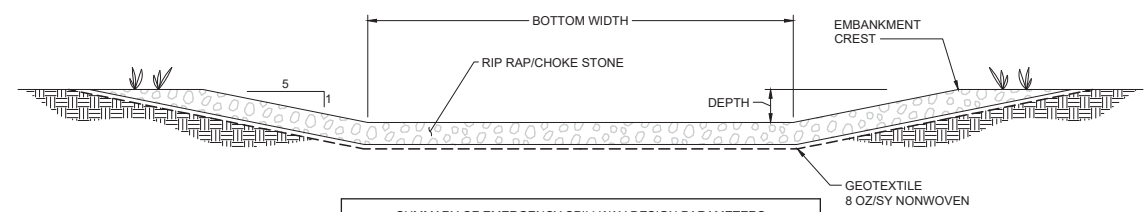
**SECTION 8**  
**STORMWATER POND SECTION G-G**  
 SCALE: HORIZONTAL 1" = 40'  
 VERTICAL 1" = 10'



**PLAN VIEW**

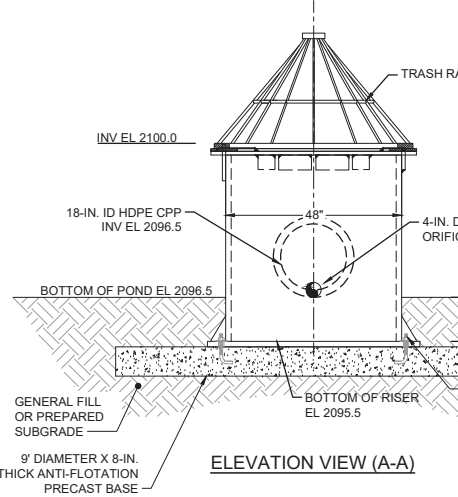


**PLAN VIEW**

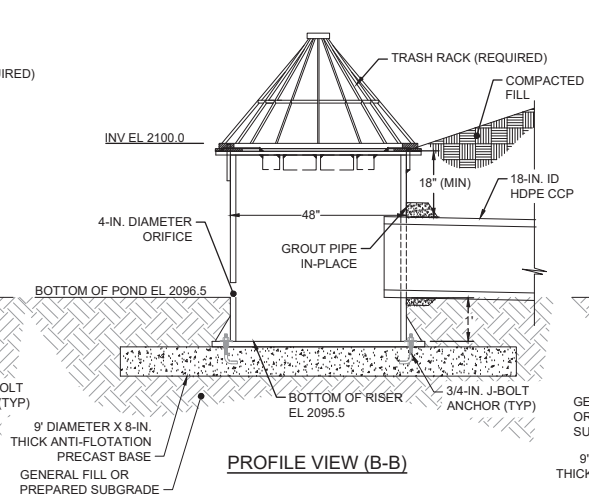


SUMMARY OF EMERGENCY SPILLWAY DESIGN PARAMETERS			
SPILLWAY LOCATION	DEPTH (FT)	BOTTOM WIDTH (FT)	EMBANKMENT CREST ELEV (FT)
WEST STORMWATER POND	1	10	2102
EAST STORMWATER POND	1	10	2109.5

**DETAIL 3**  
**EMERGENCY SPILLWAY**  
 SCALE: 1" = 4'  
 XREF: GC6463X062

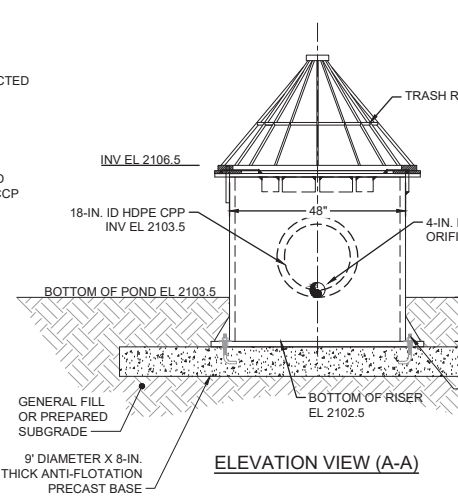


**ELEVATION VIEW (A-A)**

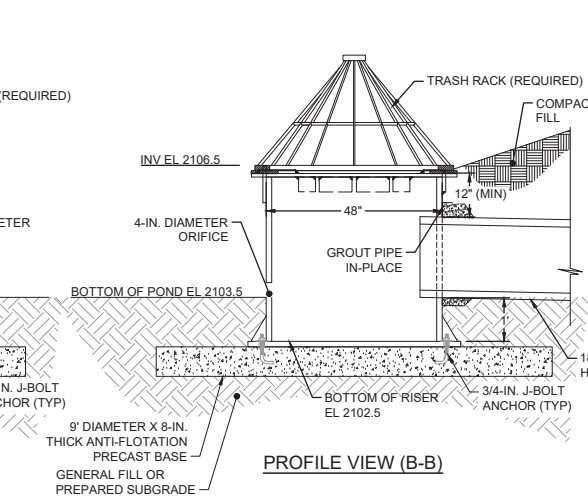


**PROFILE VIEW (B-B)**

**DETAIL 1**  
**WEST STORMWATER POND HDPE RISER**  
 SCALE: 1" = 2'  
 XREF: GC6463X065



**ELEVATION VIEW (A-A)**



**PROFILE VIEW (B-B)**

**DETAIL 2**  
**EAST STORMWATER POND HDPE RISER**  
 SCALE: 1" = 2'  
 XREF: GC6463X066

- NOTES:
- COORDINATES PROVIDED IN NORTH CAROLINA STATE PLANE IN TERMS OF NORTH AMERICAN DATUM OF 1983 (NAD83) AND ELEVATIONS IN TERMS OF FT NORTH AMERICAN VERTICAL DATUM OF 1988 (NAV88).
  - EXISTING GCL INFORMATION INTERPOLATED FROM PLANS BY VAUGHAN ENGINEERING OF MADISONVILLE, KENTUCKY TITLED "CHARAH-ASHEVILLE REGIONAL AIRPORT COAL COMBUSTION PRODUCT ENGINEERED FILL; MARCH 2010 UPDATE" OBTAINED DECEMBER 2012 FROM CHARAH INC.
  - 12-IN. THICK LOW PERMEABILITY SOIL SHALL HAVE A HYDRAULIC CONDUCTIVITY OF  $1 \times 10^{-6}$  CM/SEC OR LESS.

1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP

1300 SOUTH MINT STREET, SUITE 300  
 CHARLOTTE, NC 28203 USA  
 PHONE: 704.227.0840  
 NC LICENSE NO.: C-3500

**TITLE: STORMWATER POND CROSS SECTIONS AND OUTLET DETAILS**

PROJECT: PERMIT DRAWINGS  
 AREA 1 PROPOSED CAP DESIGN

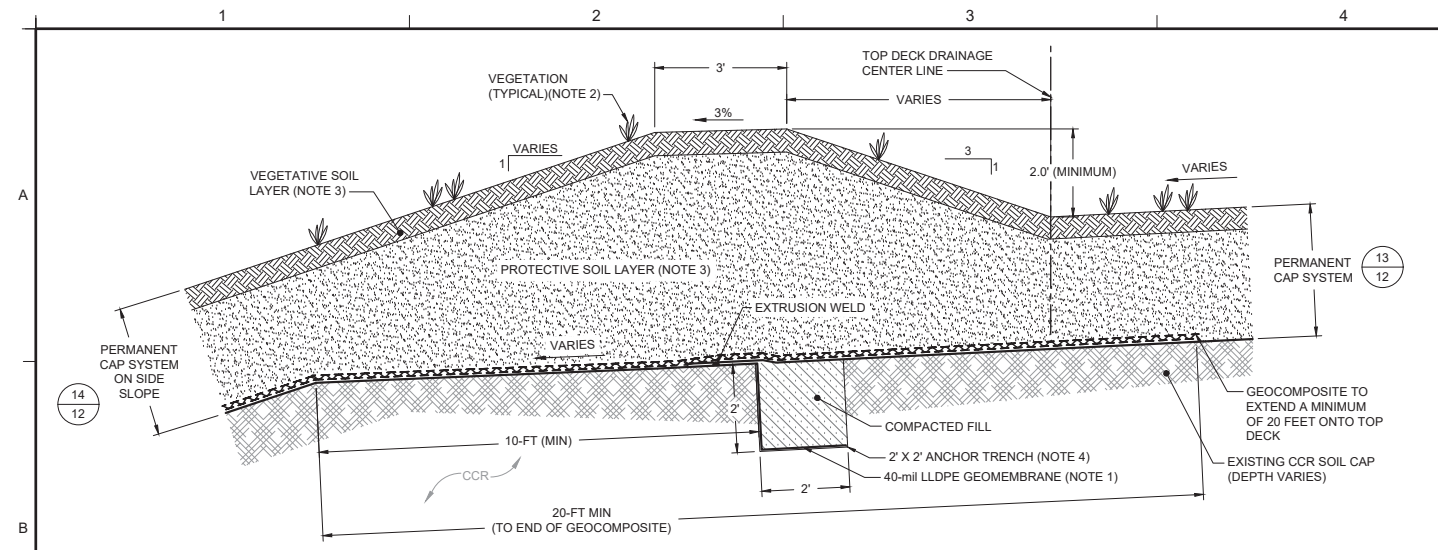
SITE: ASHEVILLE REGIONAL AIRPORT  
 FLETCHER, NORTH CAROLINA

DESIGN BY:	CSJ	DATE:	DECEMBER 2020
DRAWN BY:	MAF	PROJECT NO.:	GC7177
CHECKED BY:	CSJ	FILE:	GC6463.08P100
REVIEWED BY:	VMD	DRAWING NO.:	10 OF 16
APPROVED BY:	CSJ		

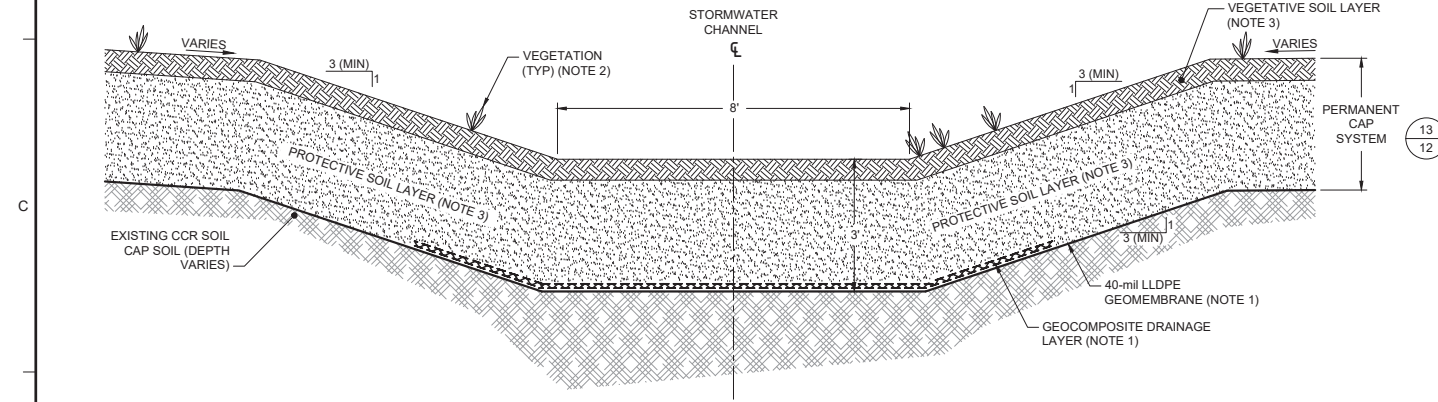
11 December 2020  
DATE

FOR REVIEW PURPOSES ONLY  
 PERMIT DRAWINGS - NOT FOR CONSTRUCTION

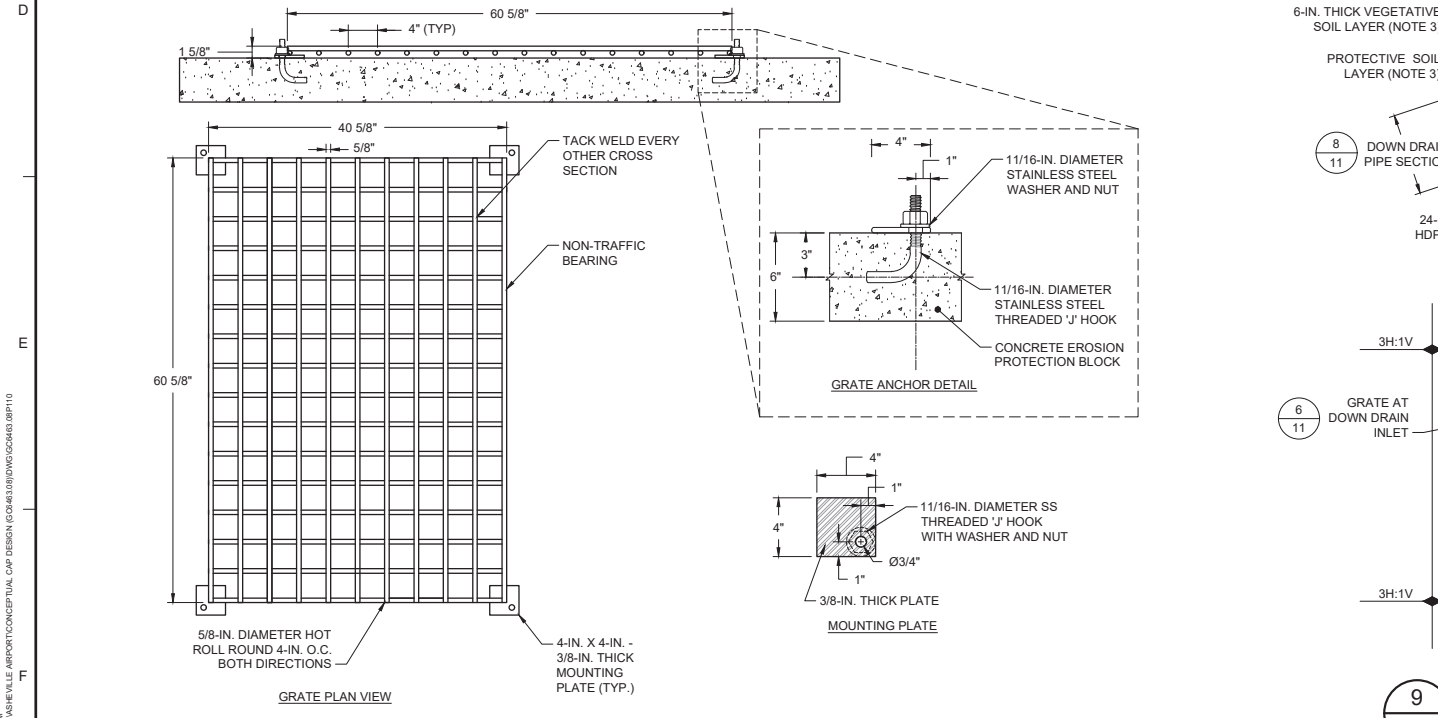




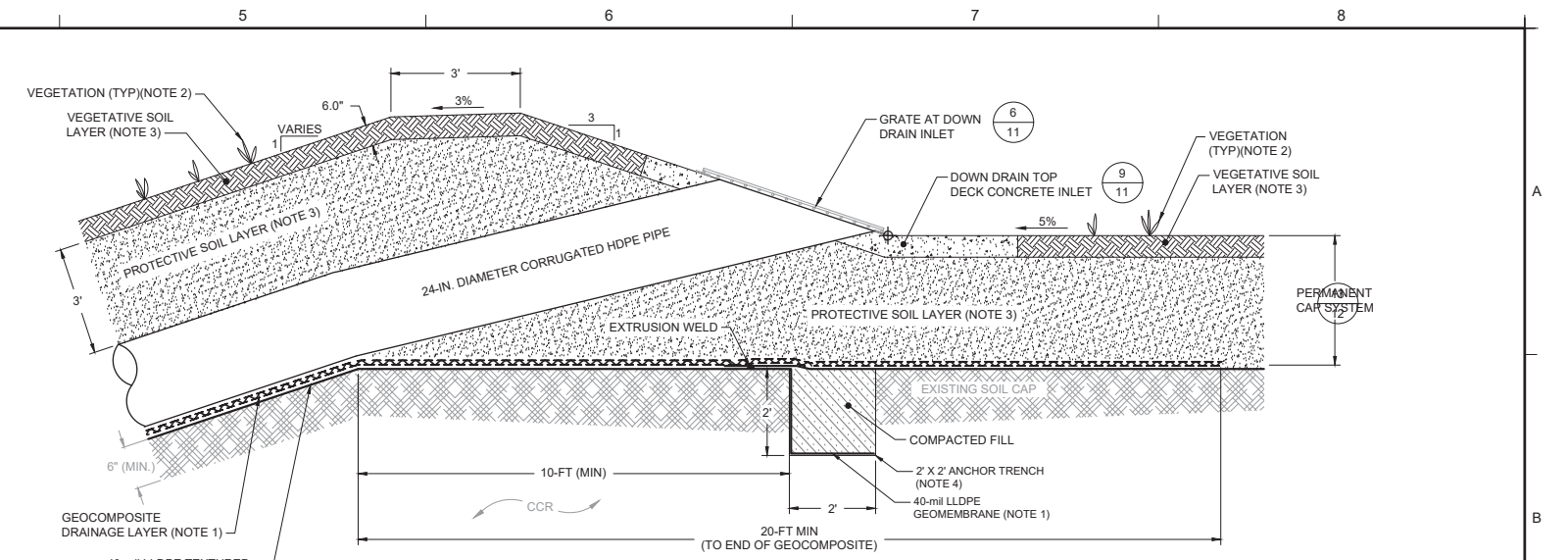
**4**  
**3** DETAIL  
NORTH SLOPE TOP DECK BERM  
SCALE: 1" = 2"  
XREF: GC6463X038



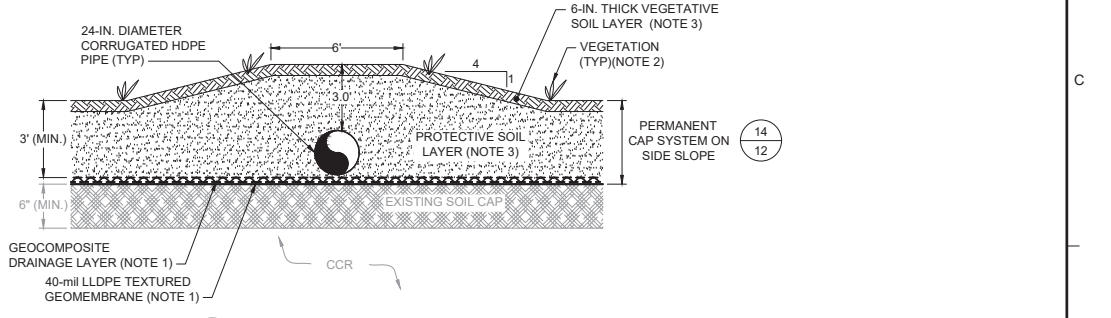
**5**  
**3** DETAIL  
STORMWATER DIVERSION SWALE  
SCALE: 1" = 2"  
XREF: GC6463X044



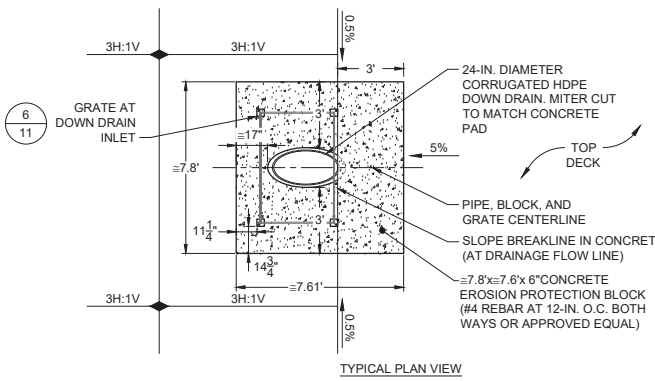
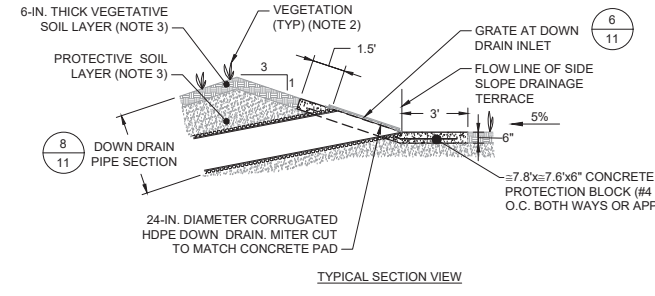
**6**  
**11** DETAIL  
GRATE AT DOWN DRAIN INLET  
SCALE: 1" = 1"  
XREF: GC6463X072



**7**  
**6** DETAIL  
DOWN DRAIN PIPE INLET AT TOP DECK DRAINAGE TERRACE  
SCALE: 1" = 2"  
XREF: GC6463X071



**8**  
**6** DETAIL  
DOWN DRAIN PIPE SECTION  
SCALE: 1" = 4"  
XREF: GC6463X074



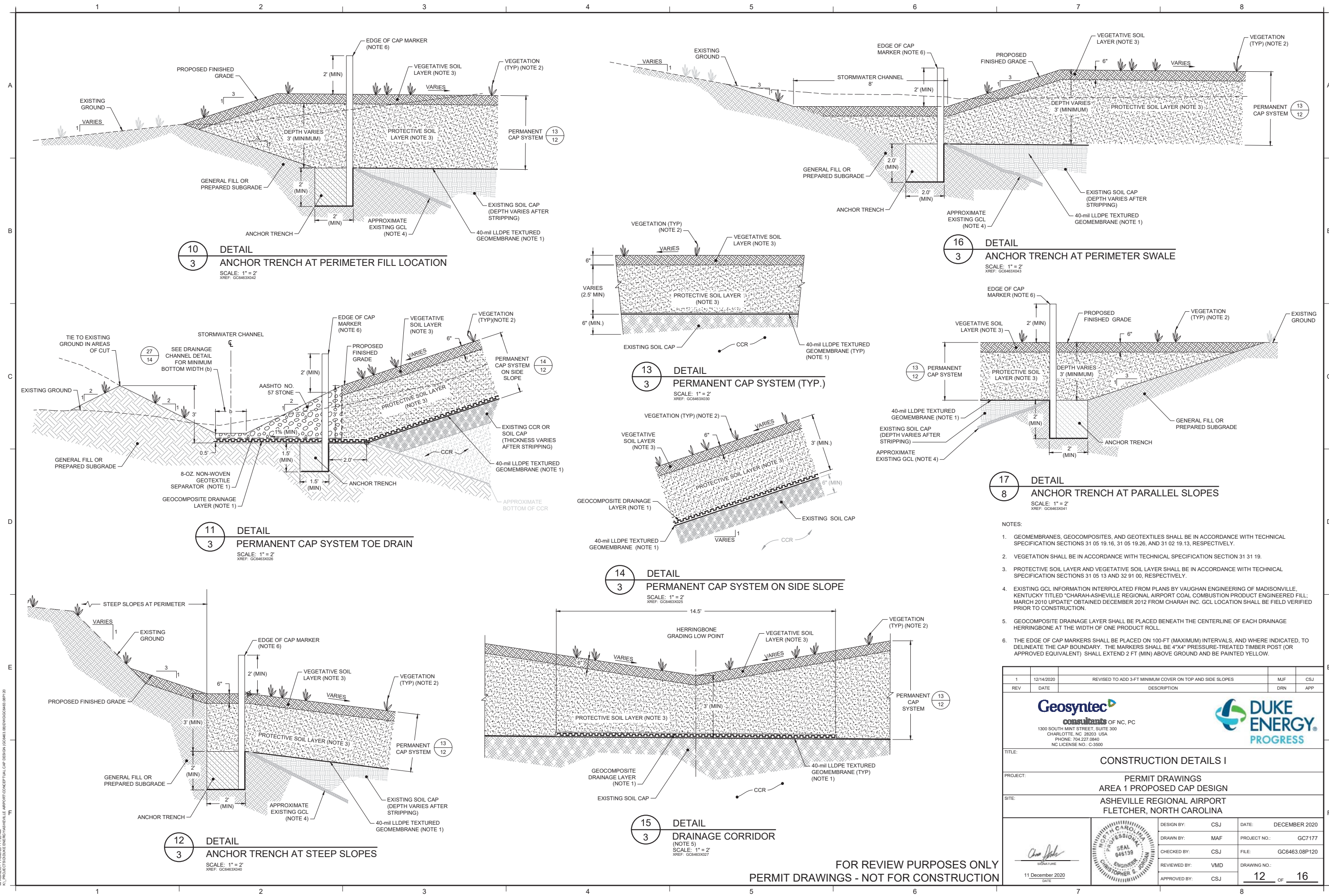
**9**  
**11** DETAIL  
DOWN DRAIN TOP DECK CONCRETE INLET  
SCALE: 1" = 4"  
XREF: GC6463X073

- NOTES:
1. GEOMEMBRANES, GEOCOMPOSITES, AND GEOTEXTILES SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTIONS 31 05 19.16, 31 05 19.26, AND 31 02 19.13, RESPECTIVELY.
  2. VEGETATION SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 31 31 19.
  3. PROTECTIVE SOIL LAYER AND VEGETATIVE SOIL LAYER SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTIONS 31 05 13 AND 32 91 00, RESPECTIVELY.
  4. GEOMEMBRANE SHALL BE TEMPORARILY ANCHORED IF PERMANENT CAP SYSTEM IS INSTALLED ON NORTHERN SIDE SLOPE PRIOR TO TOP DECK.

1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP
<p>1300 SOUTH MINT STREET, SUITE 300 CHARLOTTE, NC 28203 USA PHONE: 704.227.0840 NC LICENSE NO.: C-3500</p>				
TITLE:		STORMWATER DETAILS		
PROJECT:		PERMIT DRAWINGS AREA 1 PROPOSED CAP DESIGN		
SITE:		ASHEVILLE REGIONAL AIRPORT FLETCHER, NORTH CAROLINA		
DESIGN BY:	CSJ	DATE:	DECEMBER 2020	
DRAWN BY:	MAF	PROJECT NO.:	GC7177	
CHECKED BY:	CSJ	FILE:	GC6463.08P110	
REVIEWED BY:	VMD	DRAWING NO.:	11 OF 16	
APPROVED BY:	CSJ			

FOR REVIEW PURPOSES ONLY  
PERMIT DRAWINGS - NOT FOR CONSTRUCTION



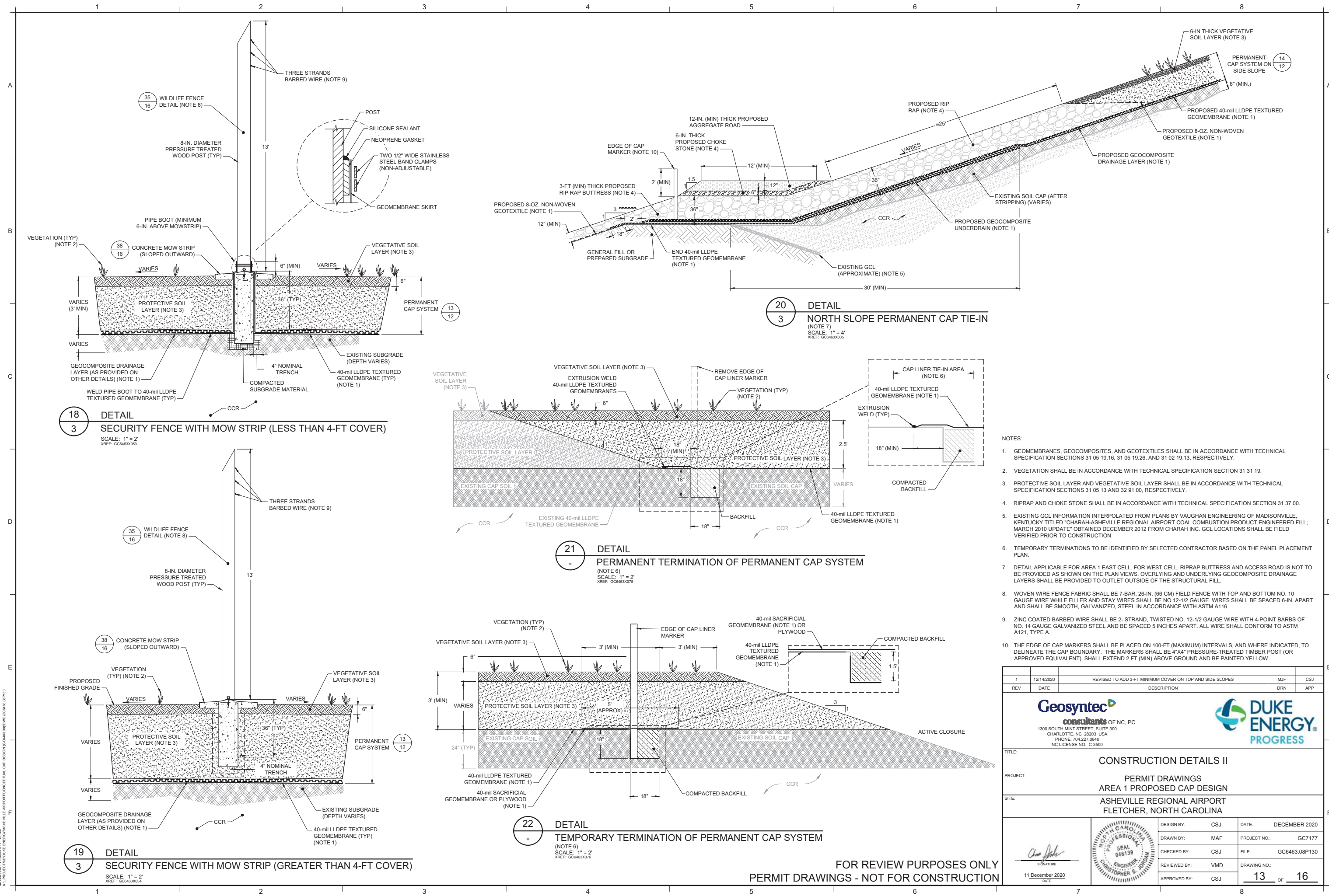


- NOTES:
1. GEOMEMBRANES, GEOCOMPOSITES, AND GEOTEXTILES SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTIONS 31 05 19.16, 31 05 19.26, AND 31 02 19.13, RESPECTIVELY.
  2. VEGETATION SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 31 31 19.
  3. PROTECTIVE SOIL LAYER AND VEGETATIVE SOIL LAYER SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTIONS 31 05 13 AND 32 91 00, RESPECTIVELY.
  4. EXISTING GCL INFORMATION INTERPOLATED FROM PLANS BY VAUGHAN ENGINEERING OF MADISONVILLE, KENTUCKY TITLED "CHARAH-ASHEVILLE REGIONAL AIRPORT COAL COMBUSTION PRODUCT ENGINEERED FILL; MARCH 2010 UPDATE" OBTAINED DECEMBER 2012 FROM CHARAH INC. GCL LOCATION SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
  5. GEOCOMPOSITE DRAINAGE LAYER SHALL BE PLACED BENEATH THE CENTERLINE OF EACH DRAINAGE HERRINGBONE AT THE WIDTH OF ONE PRODUCT ROLL.
  6. THE EDGE OF CAP MARKERS SHALL BE PLACED ON 100-FT (MAXIMUM) INTERVALS, AND WHERE INDICATED, TO DELINEATE THE CAP BOUNDARY. THE MARKERS SHALL BE 4"x4" PRESSURE-TREATED TIMBER POST (OR APPROVED EQUIVALENT) SHALL EXTEND 2 FT (MIN) ABOVE GROUND AND BE PAINTED YELLOW.

1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP
1300 SOUTH MINT STREET, SUITE 300 CHARLOTTE, NC 28203 USA PHONE: 704.227.0840 NC LICENSE NO. - C-3500				
TITLE:		CONSTRUCTION DETAILS I		
PROJECT:		PERMIT DRAWINGS AREA 1 PROPOSED CAP DESIGN		
SITE:		ASHEVILLE REGIONAL AIRPORT FLETCHER, NORTH CAROLINA		
DESIGN BY: CSJ		DATE: DECEMBER 2020		
DRAWN BY: MAF		PROJECT NO.: GC7177		
CHECKED BY: CSJ		FILE: GC6463.08P120		
REVIEWED BY: VMD		DRAWING NO.:		
APPROVED BY: CSJ		12 OF 16		

FOR REVIEW PURPOSES ONLY  
PERMIT DRAWINGS - NOT FOR CONSTRUCTION





**18** **3** **DETAIL**  
**SECURITY FENCE WITH MOW STRIP (LESS THAN 4-FT COVER)**  
 SCALE: 1" = 2'  
 XREF: GC6463X053

**19** **3** **DETAIL**  
**SECURITY FENCE WITH MOW STRIP (GREATER THAN 4-FT COVER)**  
 SCALE: 1" = 2'  
 XREF: GC6463X054

**20** **3** **DETAIL**  
**NORTH SLOPE PERMANENT CAP TIE-IN**  
 (NOTE 7)  
 SCALE: 1" = 4'  
 XREF: GC6463X055

**21** **-** **DETAIL**  
**PERMANENT TERMINATION OF PERMANENT CAP SYSTEM**  
 (NOTE 6)  
 SCALE: 1" = 2'  
 XREF: GC6463X075

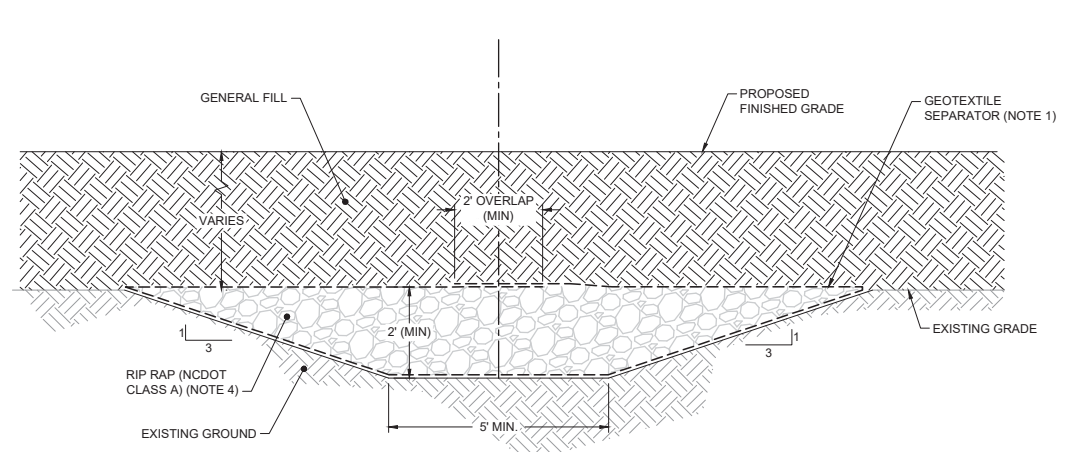
**22** **-** **DETAIL**  
**TEMPORARY TERMINATION OF PERMANENT CAP SYSTEM**  
 (NOTE 6)  
 SCALE: 1" = 2'  
 XREF: GC6463X076

- NOTES:
1. GEOMEMBRANES, GEOCOMPOSITES, AND GEOTEXTILES SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTIONS 31 05 19.16, 31 05 19.26, AND 31 02 19.13, RESPECTIVELY.
  2. VEGETATION SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 31 31 19.
  3. PROTECTIVE SOIL LAYER AND VEGETATIVE SOIL LAYER SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTIONS 31 05 13 AND 32 91 00, RESPECTIVELY.
  4. RIPRAP AND CHOKES STONE SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 31 37 00.
  5. EXISTING GCL INFORMATION INTERPOLATED FROM PLANS BY VAUGHAN ENGINEERING OF MADISONVILLE, KENTUCKY TITLED "CHARAH-ASHEVILLE REGIONAL AIRPORT COAL COMBUSTION PRODUCT ENGINEERED FILL; MARCH 2010 UPDATE" OBTAINED DECEMBER 2012 FROM CHARAH INC. GCL LOCATIONS SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
  6. TEMPORARY TERMINATIONS TO BE IDENTIFIED BY SELECTED CONTRACTOR BASED ON THE PANEL PLACEMENT PLAN.
  7. DETAIL APPLICABLE FOR AREA 1 EAST CELL. FOR WEST CELL, RIPRAP BUTTRESS AND ACCESS ROAD IS NOT TO BE PROVIDED AS SHOWN ON THE PLAN VIEWS. OVERLYING AND UNDERLYING GEOCOMPOSITE DRAINAGE LAYERS SHALL BE PROVIDED TO OUTLET OUTSIDE OF THE STRUCTURAL FILL.
  8. WOVEN WIRE FENCE FABRIC SHALL BE 7-BAR, 26-IN. (66 CM) FIELD FENCE WITH TOP AND BOTTOM NO. 10 GAUGE WIRE WHILE FILLER AND STAY WIRES SHALL BE NO 12-1/2 GAUGE. WIRES SHALL BE SPACED 6-IN. APART AND SHALL BE SMOOTH, GALVANIZED, STEEL IN ACCORDANCE WITH ASTM A116.
  9. ZINC COATED BARBED WIRE SHALL BE 2- STRAND, TWISTED NO. 12-1/2 GAUGE WIRE WITH 4-POINT BARBS OF NO. 14 GAUGE GALVANIZED STEEL AND BE SPACED 5 INCHES APART. ALL WIRE SHALL CONFORM TO ASTM A121, TYPE A.
  10. THE EDGE OF CAP MARKERS SHALL BE PLACED ON 100-FT (MAXIMUM) INTERVALS, AND WHERE INDICATED, TO DELINEATE THE CAP BOUNDARY. THE MARKERS SHALL BE 4"x4" PRESSURE-TREATED TIMBER POST (OR APPROVED EQUIVALENT) SHALL EXTEND 2 FT (MIN) ABOVE GROUND AND BE PAINTED YELLOW.

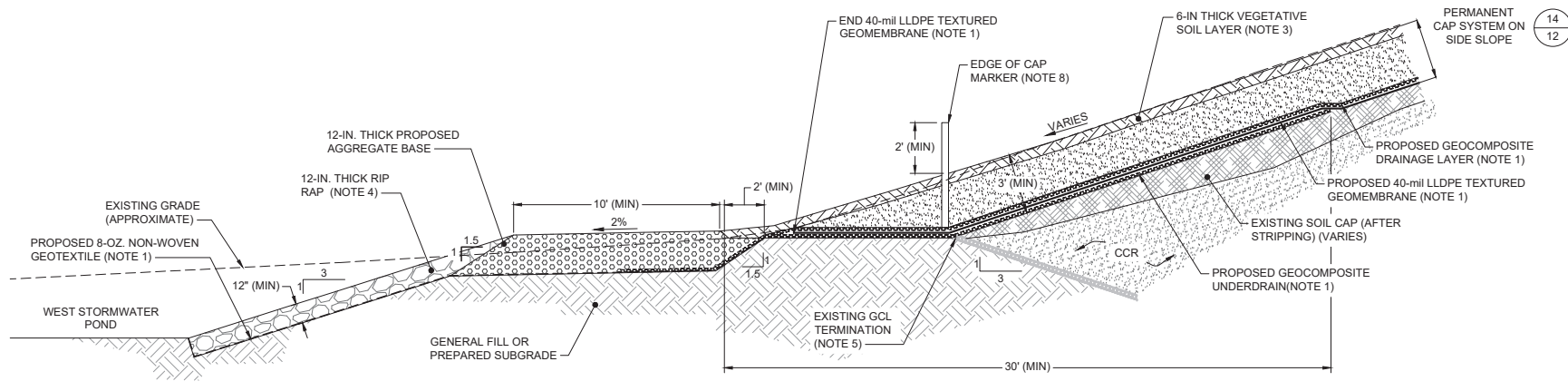
1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP
1300 SOUTH MINT STREET, SUITE 300 CHARLOTTE, NC 28203 USA PHONE: 704.227.0840 NC LICENSE NO.: C-3500				
TITLE:		CONSTRUCTION DETAILS II		
PROJECT:		PERMIT DRAWINGS AREA 1 PROPOSED CAP DESIGN		
SITE:		ASHEVILLE REGIONAL AIRPORT FLETCHER, NORTH CAROLINA		
DESIGN BY:	CSJ	DATE:	DECEMBER 2020	
DRAWN BY:	MAF	PROJECT NO.:	GC7177	
CHECKED BY:	CSJ	FILE:	GC6463.08P130	
REVIEWED BY:	VMD	DRAWING NO.:	13 OF 16	
APPROVED BY:	CSJ			

FOR REVIEW PURPOSES ONLY  
 PERMIT DRAWINGS - NOT FOR CONSTRUCTION

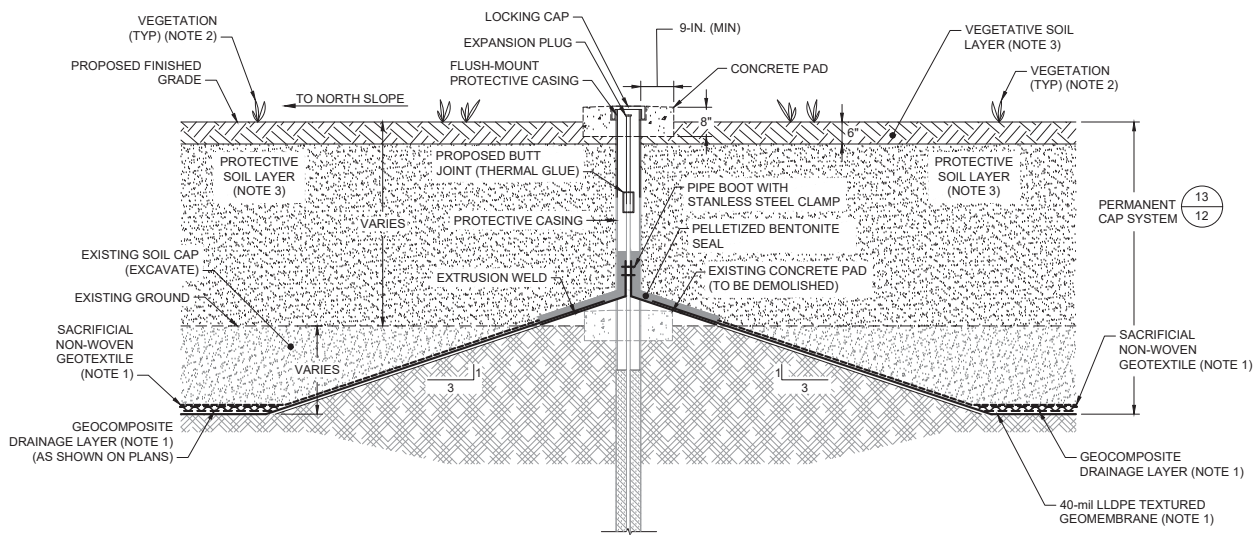




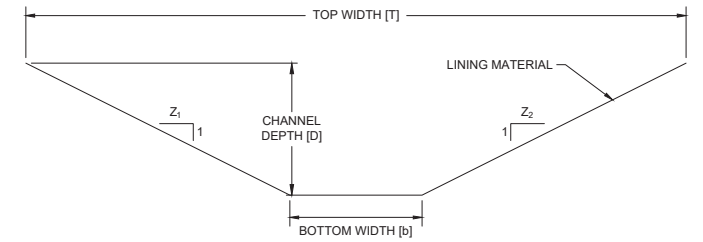
**23**  
3  
**DETAIL**  
**ROCK DRAIN**  
SCALE: 1" = 2"  
XREF: GC6463X047



**26**  
3  
**DETAIL**  
**WEST CELL LINER TERMINATION**  
SCALE: 1" = 4"  
XREF: GC6463X034



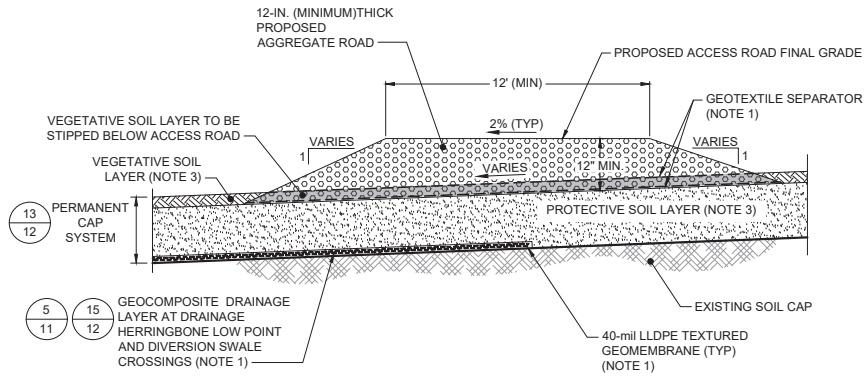
**24**  
4  
**DETAIL**  
**LINER TERMINATION AT PIEZOMETER (TYPICAL)**  
SCALE: 1" = 2"  
XREF: GC6463X061



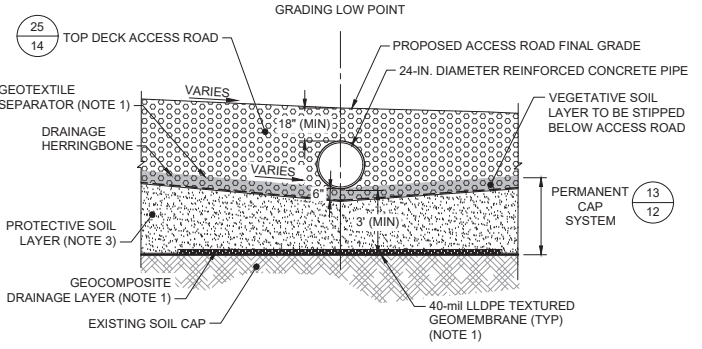
OPEN CHANNEL CONVEYANCE ID	CHANNEL LONGITUDINAL SLOPE [S] (FT/FT)	MINIMUM CHANNEL DEPTH [D] (FT)	MINIMUM TOP WIDTH [T] (FT)	MINIMUM BOTTOM WIDTH [b] (FT)	LEFT SIDE SLOPE Z <sub>1</sub> H:1V	RIGHT SIDE SLOPE Z <sub>2</sub> H:1V
WEST CHANNEL 1	0.030	1.5	14	8	3	3
WEST CHANNEL 2	0.025	1.5	14	8	3	3
WEST CHANNEL 3	0.029	1.5	14	8	3	3
EAST CHANNEL 1	0.009	3.0	18	2	3	3
EAST CHANNEL 2	0.054	3.0	18	2	3	3
SOUTH CHANNEL 1	0.022	2.5	10.5	0	3	3
SOUTH CHANNEL 2	0.056	2.0	10.5	0	3	3
SOUTH CHANNEL 3	0.009	1.0	10.5	8	3	3

**27**  
6  
**DETAIL**  
**DRAINAGE CHANNEL**  
SCALE: NTS  
XREF: GC6463X089

- NOTES:
1. GEOMEMBRANES, GEOCOMPOSITES, AND GEOTEXTILES SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTIONS 31 05 19.16, 31 05 19.26, AND 31 02 19.13, RESPECTIVELY.
  2. VEGETATION SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 31 31 19.
  3. PROTECTIVE SOIL LAYER AND VEGETATIVE SOIL LAYER SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTIONS 31 05 13 AND 32 91 00, RESPECTIVELY.
  4. RIPRAP SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 31 37 00.
  5. EXISTING GCL INFORMATION INTERPOLATED FROM PLANS BY VAUGHAN ENGINEERING OF MADISONVILLE, KENTUCKY TITLED "CHARAH-ASHEVILLE REGIONAL AIRPORT COAL COMBUSTION PRODUCT ENGINEERED FILL; MARCH 2010 UPDATE" OBTAINED DECEMBER 2012 FROM CHARAH INC. GCL LOCATION SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
  6. FOR PIEZOMETERS PZ-5 AND PZ-6, CONTRACTOR TO PROVIDE STANDARD STEEL WELL CASING THROUGH TOP OF RIPRAP BUTTRESS.
  7. ACCESS ROAD DESIGNED FOR ON-HIGHWAY H-20 WHEEL LOADS.
  8. THE EDGE OF CAP MARKERS SHALL BE PLACED ON 100-FT (MAXIMUM) INTERVALS, AND WHERE INDICATED, TO DELINEATE THE CAP BOUNDARY. THE MARKERS SHALL BE 4"x4" PRESSURE-TREATED TIMBER POST (OR APPROVED EQUIVALENT) SHALL EXTEND 2 FT (MIN) ABOVE GROUND AND BE PAINTED YELLOW.



**25**  
3  
**DETAIL**  
**TOP DECK ACCESS ROAD**  
SCALE: 1" = 4"  
XREF: GC6463X057



**28**  
6  
**DETAIL**  
**TOP DECK ACCESS ROAD CULVERT CROSSING**  
SCALE: 1" = 4"  
XREF: GC6463X058

1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP

1300 SOUTH MINT STREET, SUITE 300  
CHARLOTTE, NC 28203 USA  
PHONE: 704.227.0840  
NC LICENSE NO.: C-3500

TITLE: MISCELLANEOUS DETAILS I

PROJECT: PERMIT DRAWINGS  
AREA 1 PROPOSED CAP DESIGN

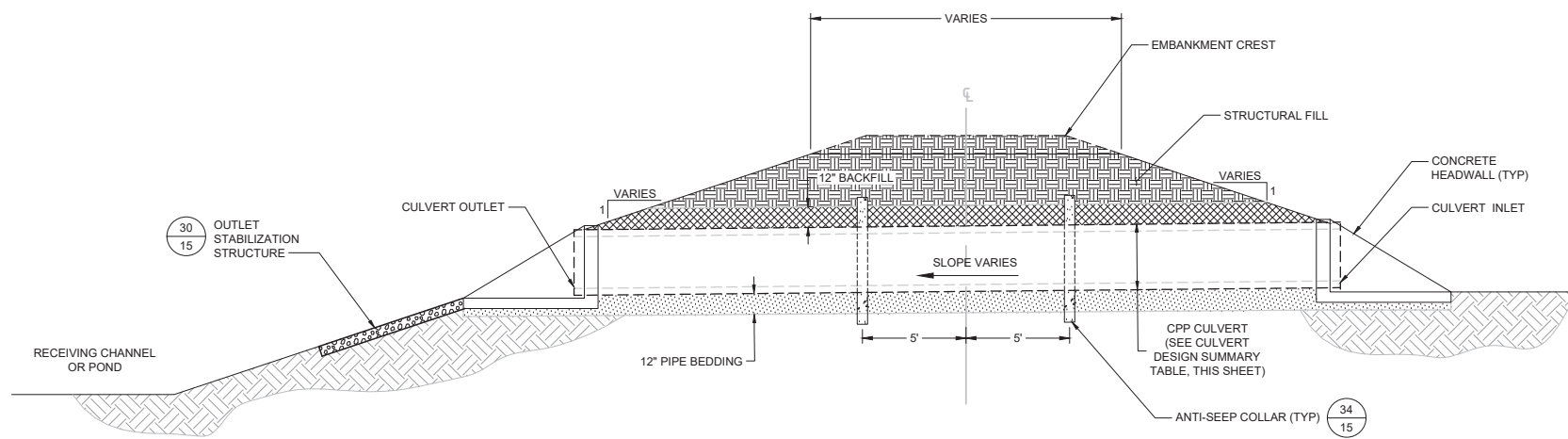
SITE: ASHEVILLE REGIONAL AIRPORT  
FLETCHER, NORTH CAROLINA

DESIGN BY:	CSJ	DATE:	DECEMBER 2020
DRAWN BY:	MAF	PROJECT NO.:	GC7177
CHECKED BY:	CSJ	FILE:	GC6463.08P140
REVIEWED BY:	VMD	DRAWING NO.:	14 OF 16
APPROVED BY:	CSJ		

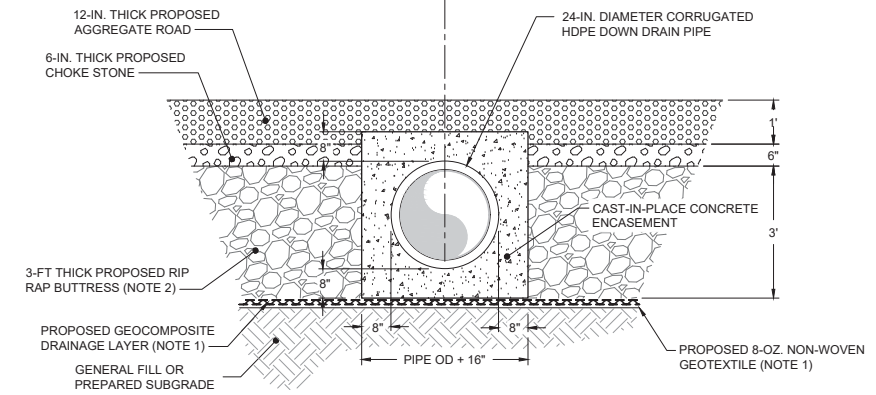
11 December 2020  
DATE

FOR REVIEW PURPOSES ONLY  
PERMIT DRAWINGS - NOT FOR CONSTRUCTION

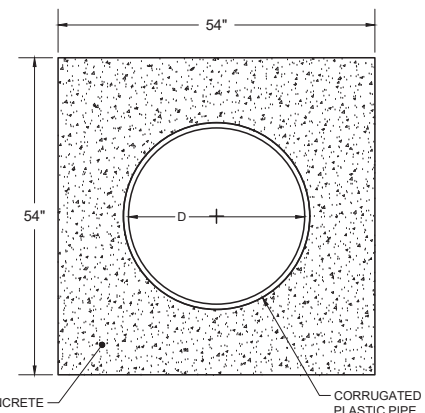




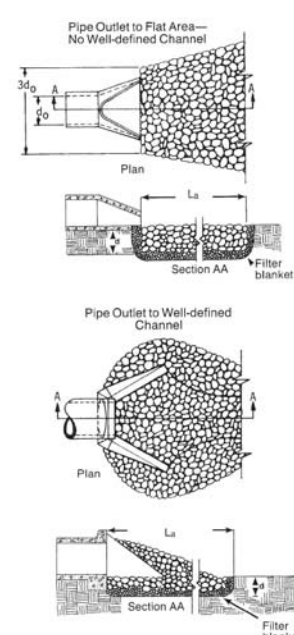
	MATERIAL TYPE	NUMBER OF PIPES	PIPE DIAMETER (IN)	LENGTH (FT)	INLET INVERT ELEVATION (FT)	OUTLET INVERT ELEVATION (FT)	SLOPE (FT/FT)	OVERTOPPING ELEVATION (FT)
EAST POND PRINCIPAL SPILLWAY	HDPE	1	18	108	2103.5	2094.2	0.086	2108.5
WEST POND PRINCIPAL SPILLWAY	HDPE	1	18	65	2096.5	2091.7	.0738	2102
EAST CHANNEL	HDPE	2	18	44	2109.1	2108.5	.0138	2112



**32**  
**8** **DETAIL**  
**CONCRETE ENCASUREMENT**  
SCALE: 1" = 2"  
XREF: GC6463X069 (CONC ENCASUREMENT)



**34**  
**15** **DETAIL**  
**ANTI-SEEP COLLAR**  
SCALE: NTS  
XREF: GC6463X069



- Notes**
1.  $L_a$  is the length of the riprap apron.
  2.  $d = 1.5$  times the maximum stone diameter but not less than 6".
  3. In a well-defined channel extend the apron up the channel banks to an elevation of 6" above the maximum tailwater depth or to the top of the bank, whichever is less.
  4. A filter blanket or filter fabric should be installed between the riprap and soil foundation.

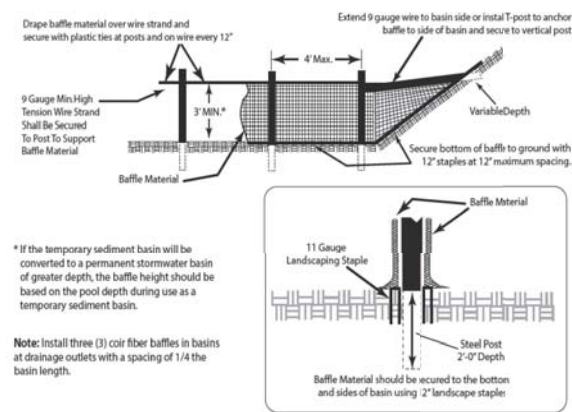
**MAINTENANCE NOTE:**

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

DISSIPATOR ID	SELECTED RIPRAP CLASS	MEDIAN RIPRAP SIZE (D <sub>50</sub> ) (IN)	MINIMUM APRON LENGTH (L <sub>a</sub> ) (FT)	UPSTREAM APRON WIDTH (W) (FT)	DOWNSTREAM APRON WIDTH (W) (FT)
RD-1	B	8	16	8	18
RD-2	B	8	12	6	14
RD-3	B	8	12	6	14
RD-4	B	8	22	11	26
RD-5	1	10	26	12	30
RD-6	B	8	15	10	18
RD-7	B	8	18	10	20
RD-8	B	8	9	6	6
RD-9	B	8	10	10	14
RD-10	B	8	10	10	14

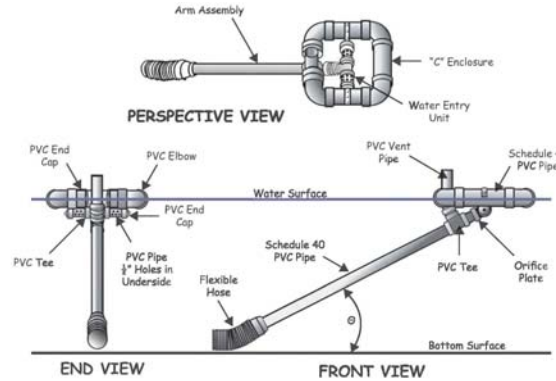
**30**  
**6** **DETAIL**  
**OUTLET STABILIZATION STRUCTURE**  
SCALE: NTS  
XREF: GC6463X081

**29**  
**6** **DETAIL**  
**CULVERT**  
SCALE: 1" = 4"  
XREF: GC6463X064



- MAINTENANCE NOTE:**
1. Inspect Baffles at least weekly. Make any required repairs immediately.
  2. Be sure to maintain access to the baffles. Should the fabric of a baffle collapse, tear, decompose, or become ineffective, replace it promptly.
  3. Remove sediment deposits when it reaches half full, to provide adequate storage volume for the next rain and to reduce pressure on the baffles. Take care to avoid damaging the baffles during cleanout, and replace if damaged during cleanout operations. Sediment depth should never exceed half the designed storage depth.
  4. After the contributing drainage area has been properly stabilized, remove all baffle materials and unstable sediment deposits, bring the area to grade, and stabilize it.

**31**  
**8** **DETAIL**  
**POROUS BAFFLE**  
SCALE: NTS  
XREF: GC6463X083



- MAINTENANCE NOTES:**
1. INSPECT SKIMMER SEDIMENT BASINS AT LEAST WEEKLY AND REPAIR IMMEDIATELY AS NEEDED. PULL THE SKIMMER TO ONE SIDE SO THAT THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASINS DOES NOT HOLD DOWN THE SKIMMER.
  2. IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, USUALLY JERKING ON THE ROPE WILL MAKE THE SKIMMER BOB UP AND DOWN AND DISLOGE THE DEBRIS AND RESTORE FLOW. IF THIS DOES NOT WORK, PULL SKIMMER OVER TO THE SIDE OF THE BASIN AND REMOVE THE DEBRIS. ALSO CHECK THE ORIFICE INSIDE THE SKIMMER TO SEE IF IT IS CLOGGED; IF SO REMOVE DEBRIS.
  3. IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, THE ORIFICE CAN BE REMOVED AND THE OBSTRUCTION CLEARED WITH A PLUMBER'S SNAKE OR BY FLUSHING WITH WATER. BE SURE AND REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.
  4. FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.

**33**  
**-** **DETAIL**  
**SKIMMER**  
SCALE: NTS  
XREF: GC6463X086

- NOTES:**
1. GEOMEMBRANES, GEOCOMPOSITES, AND GEOTEXTILES SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTIONS 31 05 19.16, 31 05 19.28, AND 31 02 19.13, RESPECTIVELY.
  2. RIPRAP SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 31 37 00.

1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP

**Geosyntec consultants** OF NC, PC  
1300 SOUTH MINT STREET, SUITE 300  
CHARLOTTE, NC 28203 USA  
PHONE: 704.227.0840  
NC LICENSE NO.: C-3500

**DUKE ENERGY PROGRESS**

**TITLE:** MISCELLANEOUS DETAILS II

**PROJECT:** PERMIT DRAWINGS  
AREA 1 PROPOSED CAP DESIGN

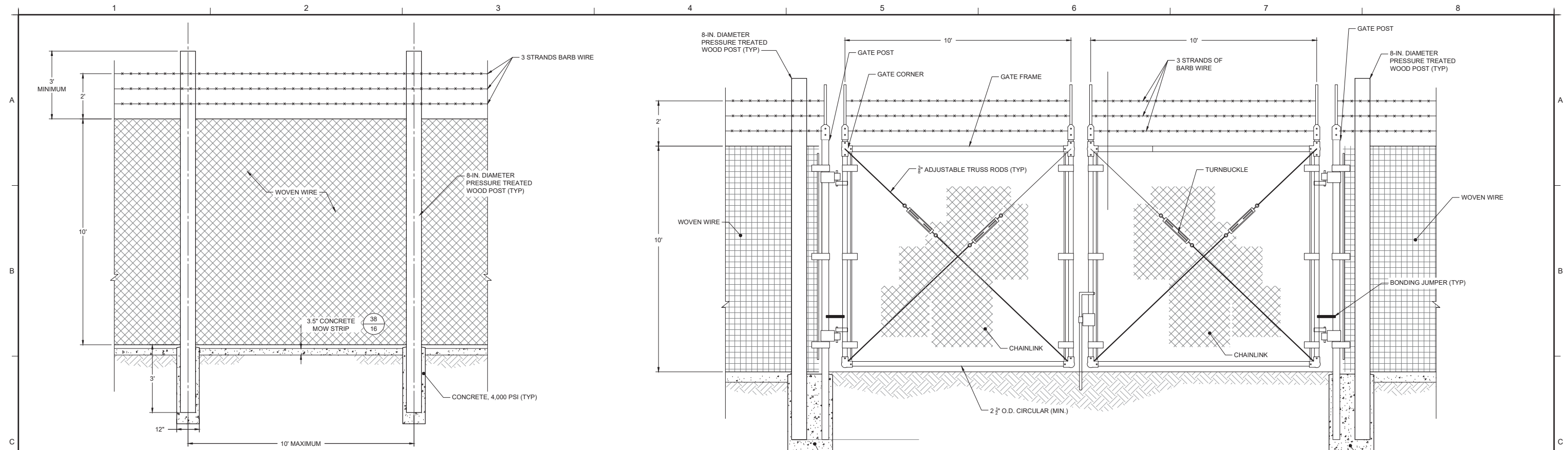
**SITE:** ASHEVILLE REGIONAL AIRPORT  
FLETCHER, NORTH CAROLINA

DESIGN BY: CSJ DATE: DECEMBER 2020  
DRAWN BY: MAF PROJECT NO.: GC7177  
CHECKED BY: CSJ FILE: GC6463.08P150  
REVIEWED BY: VMD DRAWING NO.:  
APPROVED BY: CSJ 15 OF 16

11 December 2020 DATE

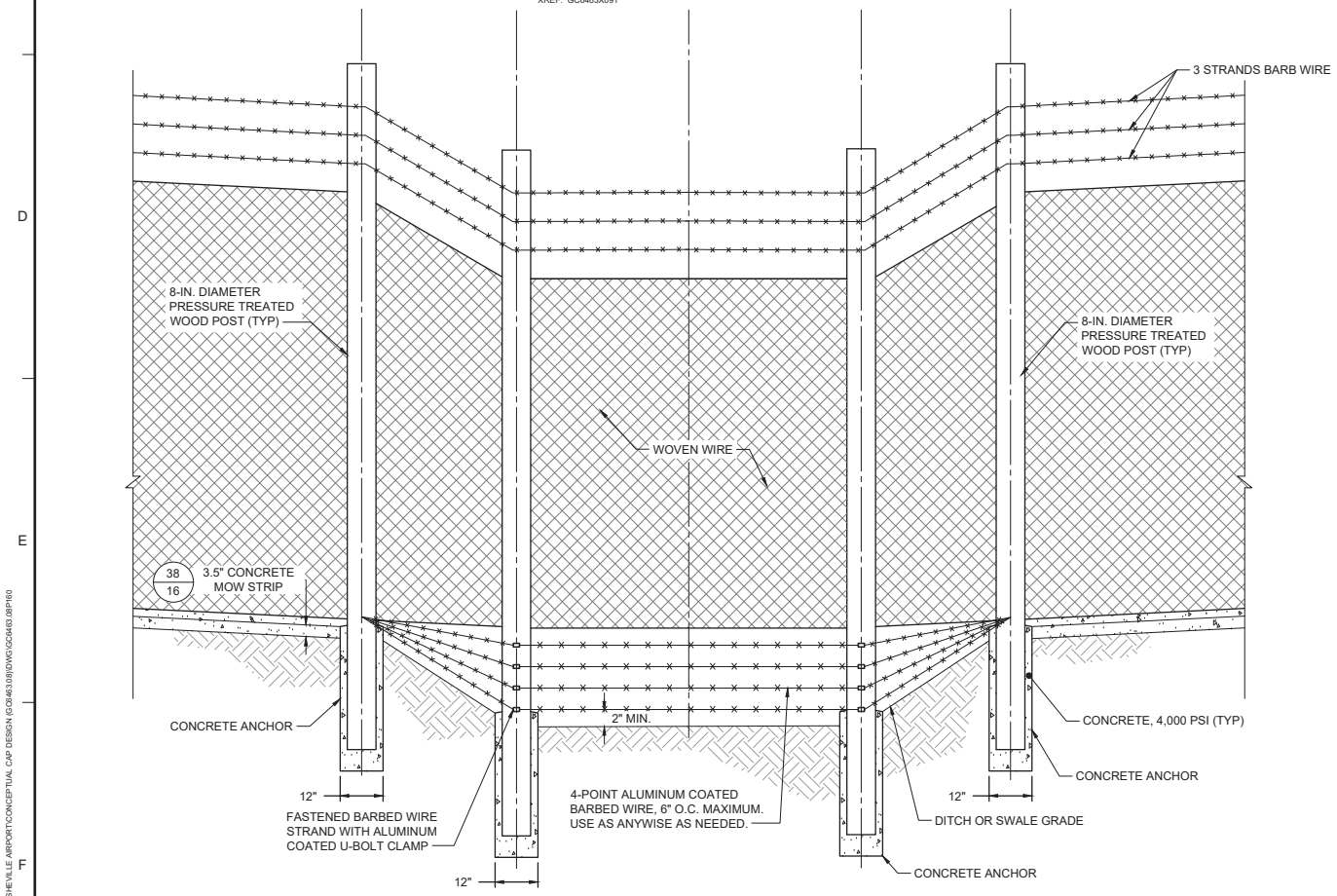
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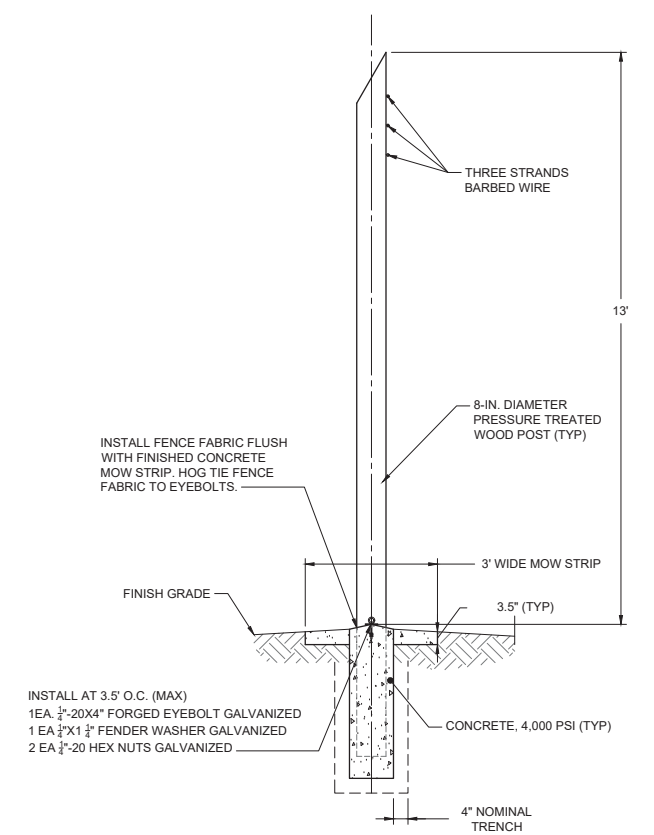


**35** DETAIL  
**13** WILDLIFE FENCE DETAIL  
 (NOTES 1, 2, AND 3)  
 SCALE: 1" = 2'  
 XREF: GC6463X091

**36** DETAIL  
**6** 20-FT WIDE PERMANENT DOUBLE SWING GATE  
 (NOTES 1, 2, AND 3)  
 SCALE: 1" = 2'  
 XREF: GC6463X094



**37** DETAIL  
**6** BARBED WIRE DITCH TREATMENT FOR CROSSING AT DITCH  
 (NOTES 1, 2, AND 3)  
 SCALE: 1" = 2'  
 XREF: GC6463X093



**38** DETAIL  
**13** MOWSTRIP/INTRUSION BARRIER DETAIL  
 (NOTES 1, 2, AND 3)  
 SCALE: 1" = 2'  
 XREF: GC6463X092

NOTES:

- WOVEN WIRE FENCE FABRIC SHALL BE 7-BAR, 26-IN. (66 CM) FIELD FENCE WITH TOP AND BOTTOM NO. 10 GAUGE WIRE WHILE FILLER AND STAY WIRES SHALL BE NO 12-1/2 GAUGE. WIRES SHALL BE SPACED 6-IN. APART AND SHALL BE SMOOTH, GALVANIZED, STEEL IN ACCORDANCE WITH ASTM A116.
- ZINC COATED BARBED WIRE SHALL BE 2- STRAND, TWISTED NO. 12-1/2 GAUGE WIRE WITH 4-POINT BARBS OF NO. 14 GAUGE GALVANIZED STEEL AND BE SPACED 5 INCHES APART. ALL WIRE SHALL CONFORM TO ASTM A121, TYPE A.
- ANCHORS SHALL NOT PENETRATE LINER WITHOUT A WELDED BOOT.

1	12/14/2020	REVISED TO ADD 3-FT MINIMUM COVER ON TOP AND SIDE SLOPES	MJF	CSJ
REV	DATE	DESCRIPTION	DRN	APP
1300 SOUTH MINT STREET, SUITE 300 CHARLOTTE, NC 28203 USA PHONE: 704.227.0840 NC LICENSE NO.: C-3500		<b>MISCELLANEOUS DETAILS III</b>		
<b>PROJECT:</b> PERMIT DRAWINGS AREA 1 PROPOSED CAP DESIGN		<b>SITE:</b> ASHEVILLE REGIONAL AIRPORT FLETCHER, NORTH CAROLINA		
DESIGN BY:	CSJ	DATE:	DECEMBER 2020	
DRAWN BY:	MAF	PROJECT NO.:	GC7177	
CHECKED BY:	CSJ	FILE:	GC6463.08P160	
REVIEWED BY:	VMD	DRAWING NO.:	16 OF 16	
APPROVED BY:	CSJ			
11 December 2020 DATE				

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 PERMIT DRAWINGS - NOT FOR CONSTRUCTION

M:\PROJECTS\DUKE ENERGY\ASHEVILLE AIRPORT\CONCEPTUAL CAP DESIGN\GC6463X093.DWG (3/16/20)