



PREPARED BY
ENGINEERING DEPARTMENT
CITY OF CONCORD
P.O. BOX 308
CONCORD N.C. 28026
(704) 920-5425

Carolina *harris-zaragoza*

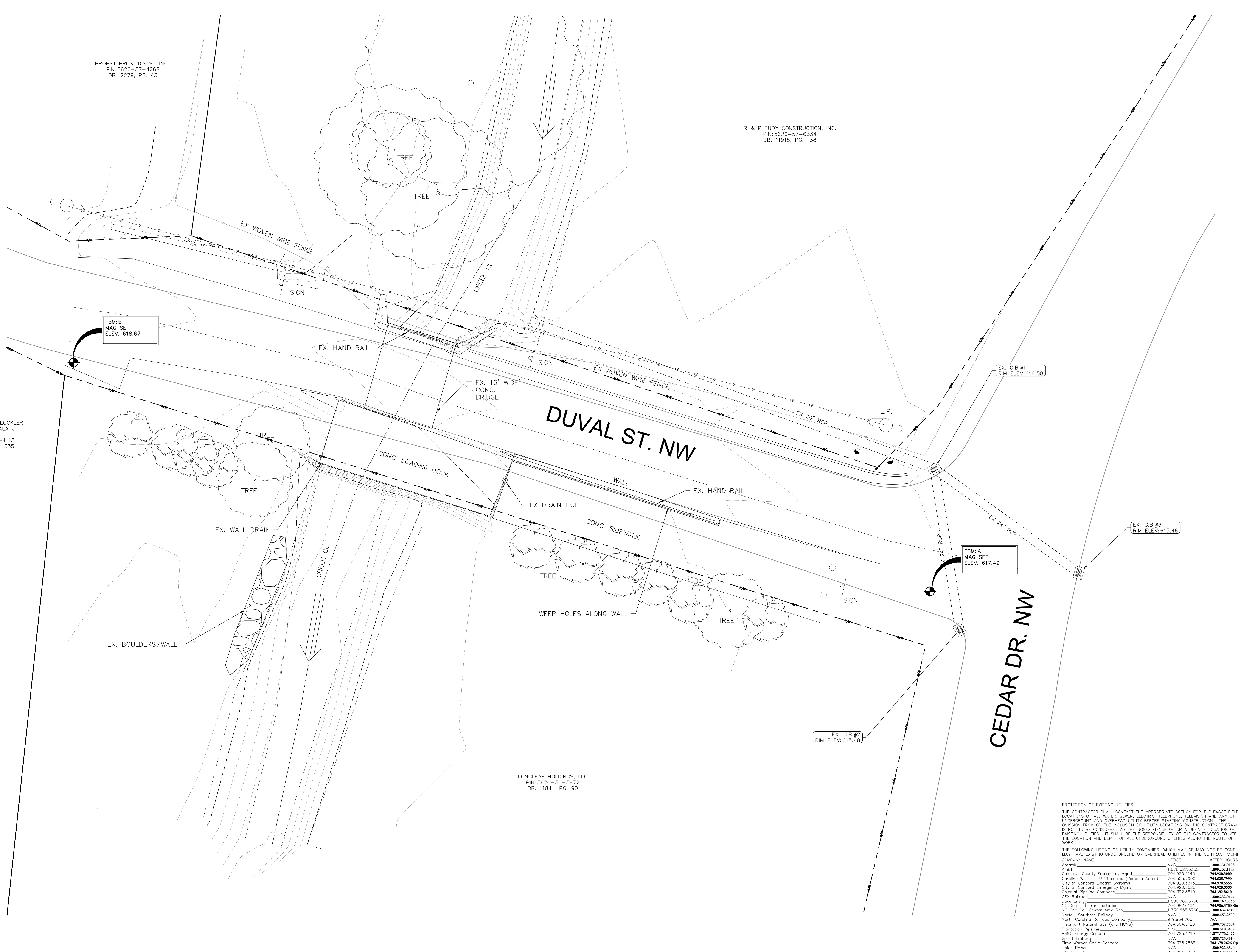
 4/6/2021
 Engineer's Seal

Surveyor's Seal

DUVAL ST CULVERT
REPLACEMENT
EXISTING CONDITIONS
PROJECT # : 2014-009

REV. #	DATE	DESCRIPTION	BY
0	03/24/21	FINAL, FOR CONSTRUCTION	BCC
1	04/06/21	REVISED BASED ON NCDOT COMMENTS	BCC

DESIGNED BY:	CZG
DRAWN BY:	BCC
CHECKED BY:	CZG
SCALE:	AS SHOWN
DATE:	01/04/21
PROJECT NUMBER:	2014-009
SHEET:	2 OF 16



WILLIAM ALBERT LOCKLER
AND wife JAHALA J.
LOCKLER,
PIN: 5620-57-4113
DB. 7617, PG. 335

PROPST BROS. DIST., INC.
PIN: 5620-57-4268
DB. 2279, PG. 43

R & P EUDY CONSTRUCTION, INC.
PIN: 5620-57-6334
DB. 11915, PG. 138

LONGLEAF HOLDINGS, LLC
PIN: 5620-56-5972
DB. 11841, PG. 90

PLAN
SCALE: 1" = 10'

PROTECTION OF EXISTING UTILITIES
THE CONTRACTOR SHALL CONTACT THE APPROPRIATE AGENCY FOR THE EXACT FIELD LOCATIONS OF ALL WATER, SEWER, ELECTRIC, TELEPHONE, TELEVISION AND ANY OTHER UNDERGROUND AND OVERHEAD UTILITIES IN THE CONTRACT VICINITY. THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE CONTRACT DRAWINGS IS NOT TO BE CONSIDERED AS THE NONEXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF WORK.

THE FOLLOWING LISTING OF UTILITY COMPANIES (WHICH MAY OR MAY NOT BE COMPLETE) MAY HAVE EXISTING UNDERGROUND OR OVERHEAD UTILITIES IN THE CONTRACT VICINITY:

COMPANY NAME	OFFICE	AFTER HOURS EMERGENCY
Ambria	N/A	1.800.331.8008
AT&T	1.678.827.5335	1.800.352.1133
Cabarrus County Emergency Mgmt.	704.925.2143	704.925.3000
Carolina Water - Utilities Inc. (Zemosa Acres)	704.525.7990	704.525.7990
City of Concord Electric Systems	704.920.5315	704.920.8665
City of Concord Emergency Mgmt.	704.920.5529	704.920.8555
Colonial Pipeline Company	704.392.8610	704.392.8610
CSX Railroad	N/A	1.800.232.6844
Duke Energy	1.800.769.3766	1.800.769.3766
NC Dept. of Transportation	704.982.0104	704.964.700 (North Carolina Toll Free)
North Carolina Area Rep.	1.536.855.5760	1.800.682.4949
North Carolina Railroad Company	919.954.7601	N/A
North Carolina State Power & Light Co.	704.364.3120	1.800.752.7504
Piedmont Pipeline	N/A	1.800.516.6070
PSNC Energy Concord	704.723.4310	1.877.776.2427
Sprint	N/A	1.800.323.8000
Time Warner Cable Concord	704.378.2856	704.378.2626 Option 5, 2, 1
Union Power	N/A	1.800.923.6848
UtilQuest Locator Concord	704.864.8333	1.800.632.4949 NC One Call
Water & Sewer Authority of Cabarrus Co.	704.785.1783	704.785.1144 (RRW WTP)
WasteStream	704.722.2000	1.800.800.6669

NOTE: SOME OF THE ABOVE COMPANIES DO NOT SUBSCRIBE TO CAROLINA ONE CALL (FORMERLY 1-800-ONE CALL)

NORTH CAROLINA ONE CALL 1-800-632-4949

NOTES

1. REMOVAL OF TREES AND SHRUBS ARE TO BE MINIMIZED AS MUCH AS POSSIBLE. CONTRACTOR TO AVOID AND MINIMIZE DAMAGE TO THOSE TREES AND SHRUBS DETERMINED TO REMAIN.
2. ALL EXISTING SERVICE CONNECTIONS TO REMAIN IN SERVICE AND TO BE PROTECTED DURING CONSTRUCTION. CONTRACTOR SHALL LOCATE AND MAKE PROVISIONS IN ACCORDANCE WITH THE CITY OF CONCORD FOR PROTECTION.
3. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN INGRESS AND EGRESS TO ALL BUSINESSES AND DWELLINGS, AND EASY ACCESS TO FIRE HYDRANTS.



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ENGINEERING DEPARTMENT
CITY OF CONCORD
P.O. BOX 308
CONCORD N.C. 28026
(704) 920-5425

Carolina Lara Zaragoza
Professional Engineer
SEAL
044150
ENGINEER
CAROLINA LARA ZARAGOZA
4/6/2021
Engineer's Seal

Surveyor's Seal

DUVAL ST CULVERT
REPLACEMENT
DEMOLITION PLAN
PROJECT # : 2014-009

REV. #	DATE	DESCRIPTION	BY
0	03/24/21	FINAL, FOR CONSTRUCTION	BCC
1	04/06/21	REVISED CONCRETE REMOVAL NOTE	BCC

DESIGNED BY: CGZ
DRAWN BY: BCC
CHECKED BY: CGZ
SCALE: AS SHOWN
DATE: 01/04/21
PROJECT NUMBER: 2014-009
SHEET: 3 OF 16

CONTRACTOR SHALL MINIMIZE
REMOVAL OF EXISTING WOVEN
WIRE FENCE IN CONFLICT WITH
CONSTRUCTION

PROPST BROS. DIST. S., INC.
PIN: 5620-57-4268
DB. 2279, PG. 43

CONTRACTOR TO MAINTAIN
ACCESS TO PARCEL DURING
CONSTRUCTION

CONTRACTOR TO REMOVE
EXISTING BRIDGE, FENCING AND
HEADWALL STRUCTURE

LIMITS OF DISTURBANCE

CONTRACTOR TO ABANDON
EX. PIPE IN PLACE AND PLUG
ENDS

ROAD CLOSED
BARRICADE TYPE III
NCDOT 1145.01
SEE SHT. 16 FOR
CLOSURE PLAN

CONTRACTOR TO REMOVE
EXISTING PAVEMENT AND
CURB AND GUTTER IN
CONFLICT WITH PROPOSED
CONSTRUCTION

WILLIAM ALBERT LOCKLER AND wife
JAHALA J. LOCKLER
PIN: 5620-57-4113
DB. 7617, PG. 335

CONTRACTOR TO REMOVE
EXISTING TREES AND BUSHES IN
CONFLICT WITH CONSTRUCTION

CONTRACTOR TO REMOVE
EXISTING CONCRETE AND
WOOD LOADING DOCK

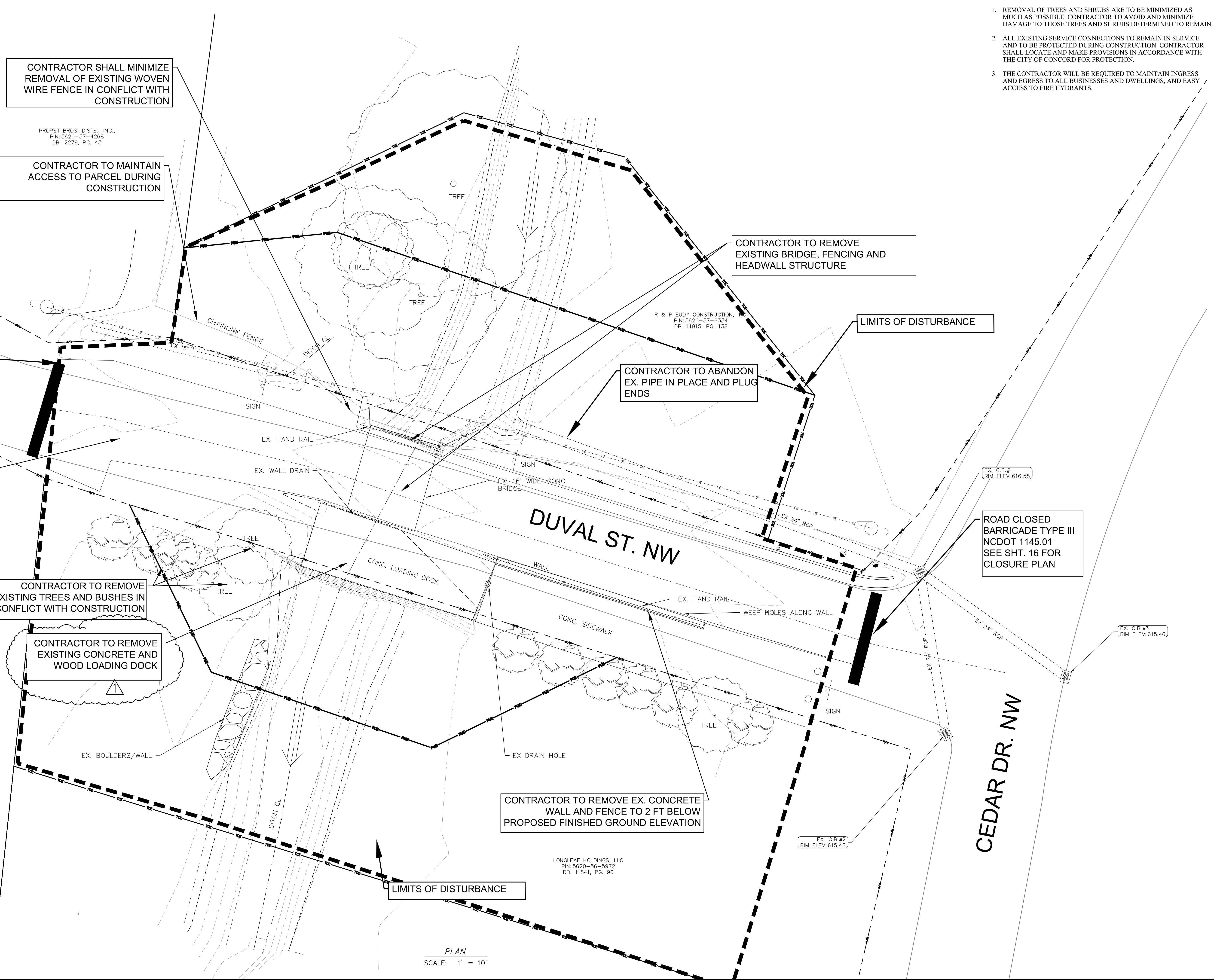
ROAD CLOSED
BARRICADE TYPE III
NCDOT 1145.01
SEE SHT. 16 FOR
CLOSURE PLAN

CONTRACTOR TO REMOVE EX. CONCRETE
WALL AND FENCE TO 2 FT BELOW
PROPOSED FINISHED GROUND ELEVATION

LONGLEAF HOLDINGS, LLC
PIN: 5620-56-5972
DB. 11841, PG. 90

LIMITS OF DISTURBANCE

PLAN
SCALE: 1" = 10'



COMPOST FILTER SOCK,
FILTREXX SILT SOXX, DIAMOND
SOCK OR EQUIVALENT

PROPT BROS. DIST. INC.
PIN: 5620-57-4268
DB: 2279, PG. 43

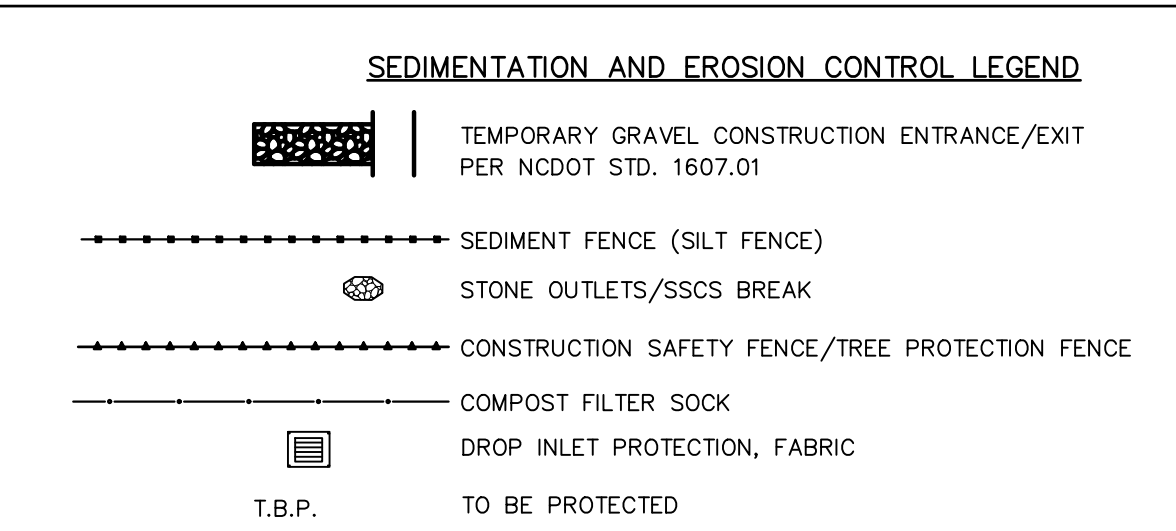
R & P EUDY CONSTRUCTION, INC.
PIN: 5620-57-6334
DB: 11915, PG. 138

WILLIAM ALBERT LOCKLER AND
WIFE JAHALA J. LOCKLER,
PIN: 5620-57-4113
DB: 7617, PG. 335

COMPOST FILTER SOCK,
FILTREXX SILT SOXX, DIAMOND
SOCK OR EQUIVALENT

LONGCREST ENGINEERS, LLC
PIN: 5620-57-4268
DB: 11841, PG. 30

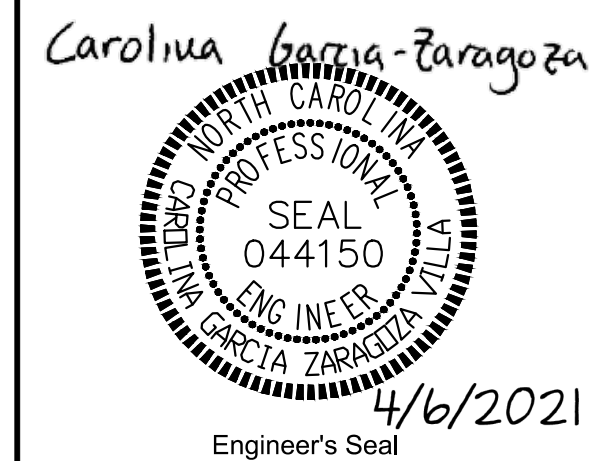
PLAN
SCALE: 1" = 10'



- NOTES**
- REMOVAL OF TREES AND SHRUBS ARE TO BE MINIMIZED AS MUCH AS POSSIBLE. CONTRACTOR TO AVOID AND MINIMIZE DAMAGE TO THOSE TREES AND SHRUBS DETERMINED TO REMAIN.
 - STREAM AREAS IMPACTED DUE TO SITE DEWATERING ACTIVITIES SHALL BE REGRADED TO ITS PRECONSTRUCTION CONTOURS AND REVEGETATED WITH APPROPRIATE NATIVE SPECIES, SUCH AS "BLUE FLAG IRIS", "SOFT RUSH", AND "LIZARD'S TAIL".
 - CONTRACTOR TO USE LOCAL UNSUITABLE MATERIAL AS TOPSOIL.
 - EROSION CONTROL MATTING SHALL USE BIODEGRADABLE NETTING.



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CITY OF CONCORD
P.O. BOX 308
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(704) 920-5425



Surveyor's Seal

**DUVAL ST CULVERT
REPLACEMENT
EROSION CONTROL PLAN
PROJECT # : 2014-009**

REV. #	DATE	DESCRIPTION	BY
0	03/24/21	FINAL, FOR CONSTRUCTION	BCC
1	04/06/21	REVISED BASED ON NCDOT COMMENTS	BCC

DESIGNED BY: CGZ
DRAWN BY: BCC
CHECKED BY: CGZ
SCALE: AS SHOWN
DATE: 01/04/21
PROJECT NUMBER: 2014-009
SHEET: 4 OF: 16

PROTECTION OF EXISTING UTILITIES
THE CONTRACTOR SHALL CONTACT THE APPROPRIATE AGENCY FOR THE EXACT FIELD LOCATIONS OF ALL WATER, SEWER, ELECTRIC, TELEPHONE, TELEVISION AND ANY OTHER UNDERGROUND AND OVERHEAD UTILITIES IN THE CONTRACT VICINITY. THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE CONTRACT DRAWINGS IS NOT TO BE CONSIDERED AS THE NONEXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF WORK.

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COMPANY NAME	OFFICE	AFTER HOURS EMERGENCY
Ambria	N/A	1.800.331.8000
AT&T	1.678.827.5335	1.800.352.1133
Cabarrus County Emergency Mgmt.	704.925.2143	704.925.3000
Carolina Water - Utilities Inc. (Zemoss Acres)	704.525.7990	704.525.7990
City of Concord Electric Systems	704.920.5315	704.920.8555
City of Concord Emergency Mgmt.	704.920.5529	704.920.5555
Colonial Pipeline Company	704.392.8610	704.392.8610
CSX Railroad	N/A	1.800.232.6144
Duke Energy	1.800.769.3766	1.800.769.3766
NC Dept. of Transportation	704.982.0104	704.966.700 (North Carolina Toll Free)
NC One Call Center Area Rep.	1.536.855.5760	1.800.612.4949
North Carolina Railroad	N/A	1.800.683.3530
North Carolina Railroad Company	919.954.7601	N/A
Piedmont Natural Gas (aka NONG)	704.364.3120	1.800.752.7504
Pinebluff Pipeline	N/A	1.800.516.6279
PSNC Energy Concord	704.723.4310	1.877.776.2427
Sprint Embers	N/A	1.800.723.8010
Time Warner Cable Concord	704.378.2856	704.378.2626 (Option 5, 2, 1)
Union Power	N/A	1.800.923.6849
UtiliQuest Locator Concord	704.864.8333	1.800.612.4949 (NC One Call)
Water & Sewer Authority of Cabarrus Co.	704.785.1783	704.785.1164 (RRWWTP)
Windspring	704.722.2000	1.800.880.6669

NOTE: SOME OF THE ABOVE COMPANIES DO NOT SUBSCRIBE TO CAROLINA ONE CALL (FORMERLY 1-800-632-4949)



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CITY OF CONCORD
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CONCORD N.C. 28026
(704) 920-5425

Carolina Garcia-Zaragoza



4/6/2021
Engineer's Seal

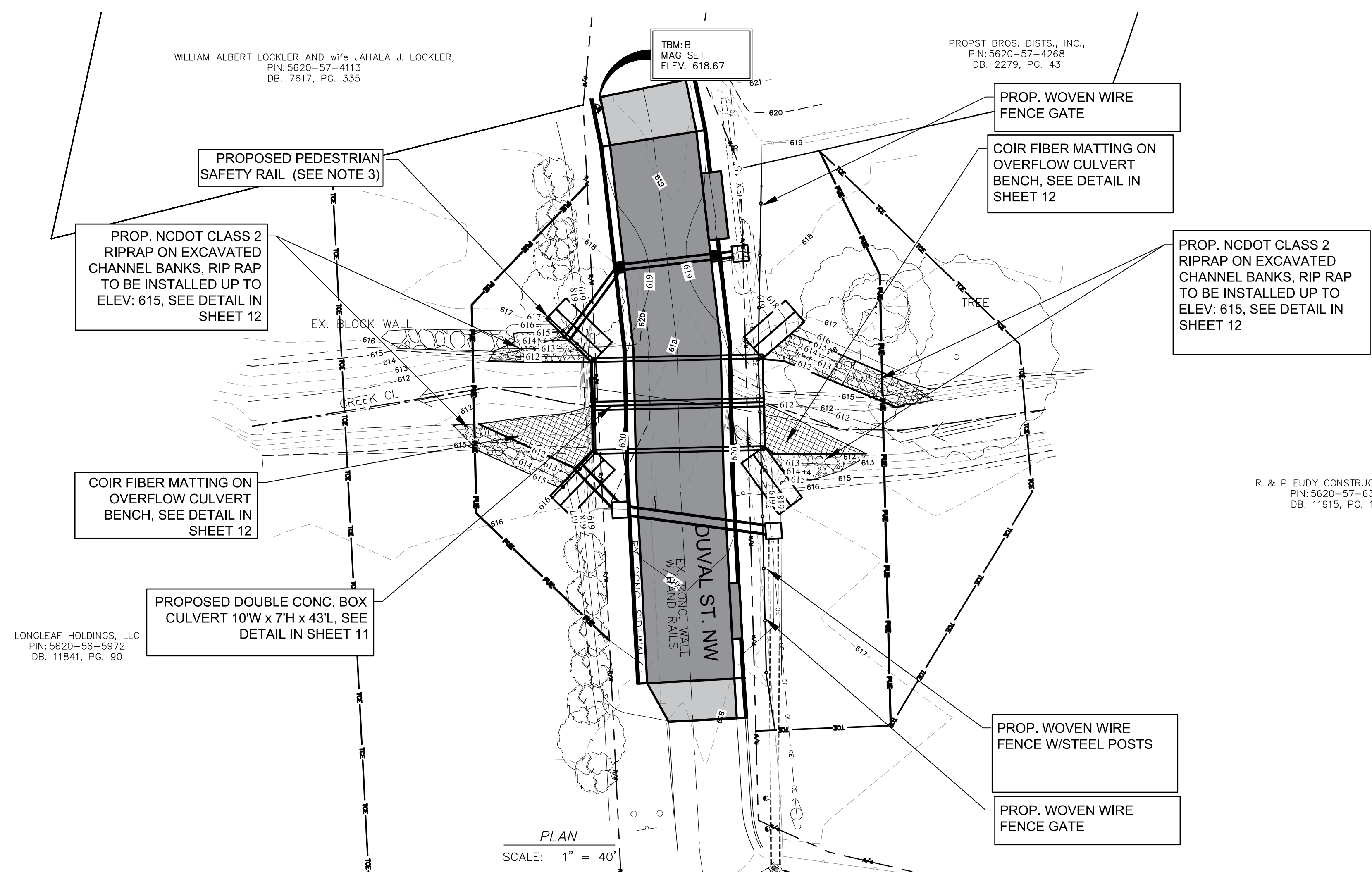
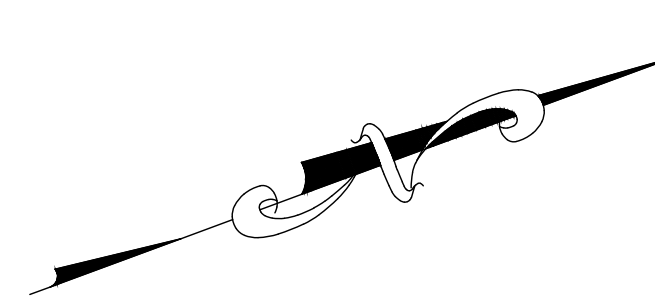
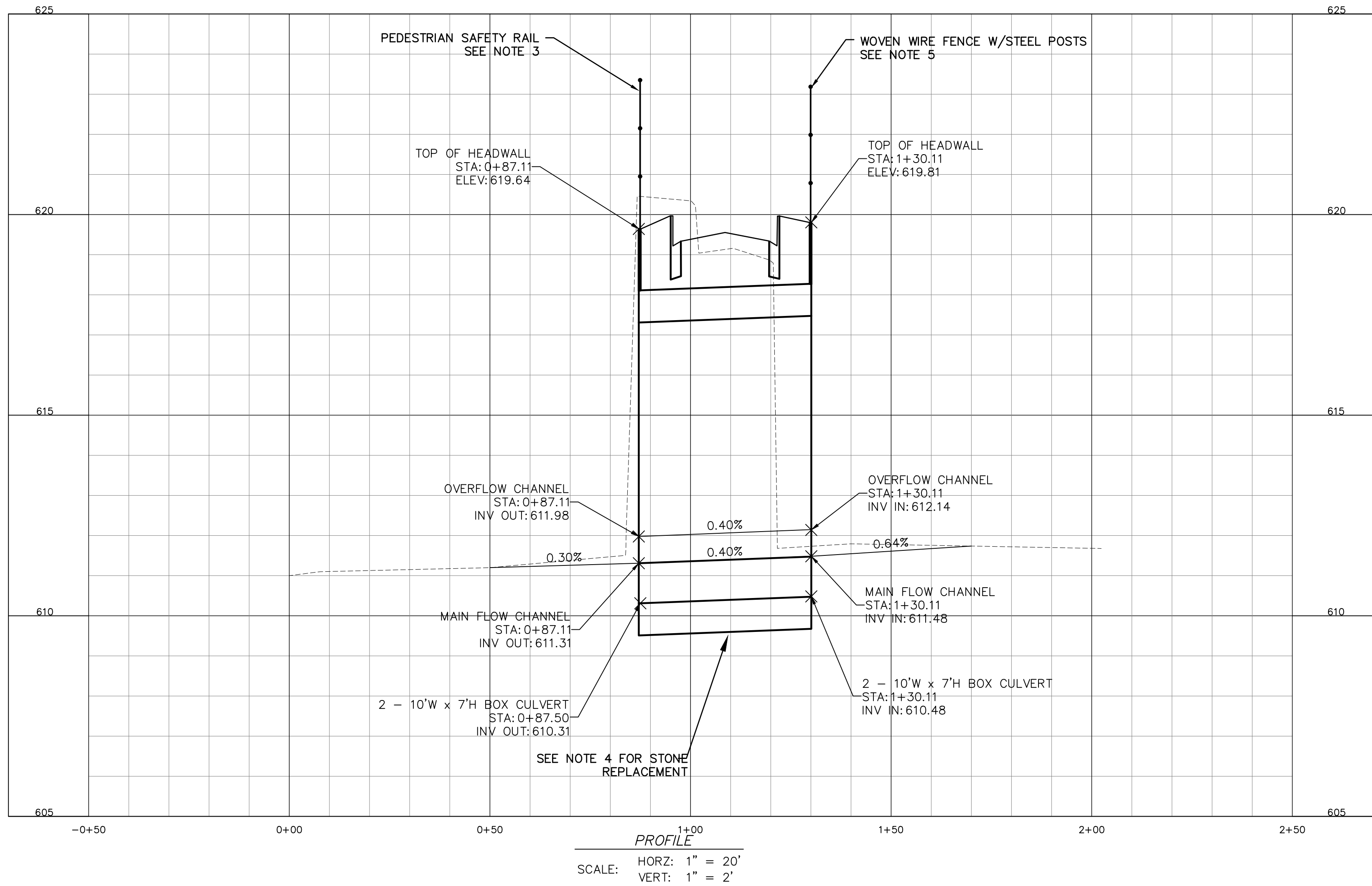
Surveyor's Seal

**DUVAL ST CULVERT
REPLACEMENT
PLAN & PROFILE
PROJECT # : 2014-009**

REV #	DATE	DESCRIPTION	BY
0	03/24/21	FINAL, FOR CONSTRUCTION	BCC
1	04/06/21	REVISED BASED ON NCDOT COMMENTS	BCC

DESIGNED BY: CGZ
DRAWN BY: BCC
CHECKED BY: CGZ
SCALE: AS SHOWN
DATE: 02/18/21
PROJECT NUMBER: 2014-009
SHEET: 5 OF: 16

- NOTES
- CONTRACTOR TO REPLACE EXISTING ROADWAY ACCORDING TO CITY OF CONCORD AND NCDOT STANDARDS. SEE SHT. 13 FOR TYPICAL CROSS SECTION.
 - REMOVAL OF TREES AND SHRUBS ARE TO BE MINIMIZED AS MUCH AS POSSIBLE. CONTRACTOR TO AVOID AND MINIMIZE DAMAGE TO THOSE TREES AND SHRUBS DETERMINED TO REMAIN.
 - CONTRACTOR TO INSTALL PEDESTRIAN SAFETY RAIL ALONG HEADWALLS / WINGWALLS. PAINT COLOR SW 6258 FLAT SHEEN, OR EQUIVALENT. SEE DETAIL IN SHT. 12.
 - CONTRACTOR TO INSTALL 2' STONE REPLACEMENT UNDER CULVERT BEDDING AND WINGWALL LEVELLING PADS. STONE REPLACEMENT SHALL EXTEND 2' BEYOND CULVERT AND WINGWALLS FOOTPRINT ON ALL 4 SIDES. #57 STONE SHALL BE ENCAPSULATED IN TYPE 4 FILTER FABRIC. THE FABRIC SHALL BE PLACED PERPENDICULAR TO THE BARRELS, WITH A MINIMUM OF 2' OF OVERLAP BETWEEN SHEETS. SEE DETAILS IN SHEET 11.
 - CONTRACTOR TO INSTALL WOVEN WIRE FENCE ALONG CULVERT HEADWALL. CONNECTIONS SHALL BE DESIGNED, DETAILED AND SPECIFIED BY THE HEADWALL MANUFACTURER OR MANUFACTURER'S REPRESENTATIVE LICENSED IN THE STATE OF NORTH CAROLINA.



R & P EUDY CONSTRUCTION, INC.
PIN: 5620-57-6334
DB. 11915, PG. 138

PROTECTION OF EXISTING UTILITIES
THE CONTRACTOR SHALL CONTACT THE APPROPRIATE AGENCY FOR THE EXACT FIELD LOCATIONS OF ALL WATER, SEWER, ELECTRIC, TELEPHONE, TELEVISION AND ANY OTHER UNDERGROUND AND OVERHEAD UTILITY BEFORE STARTING CONSTRUCTION. THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE CONTRACT DRAWINGS IS NOT TO BE CONSIDERED AS THE NONEXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF WORK.

THE FOLLOWING LISTING OF UTILITY COMPANIES (WHICH MAY OR MAY NOT BE COMPLETE) MAY HAVE EXISTING UNDERGROUND OR OVERHEAD UTILITIES IN THE CONTRACT VICINITY.

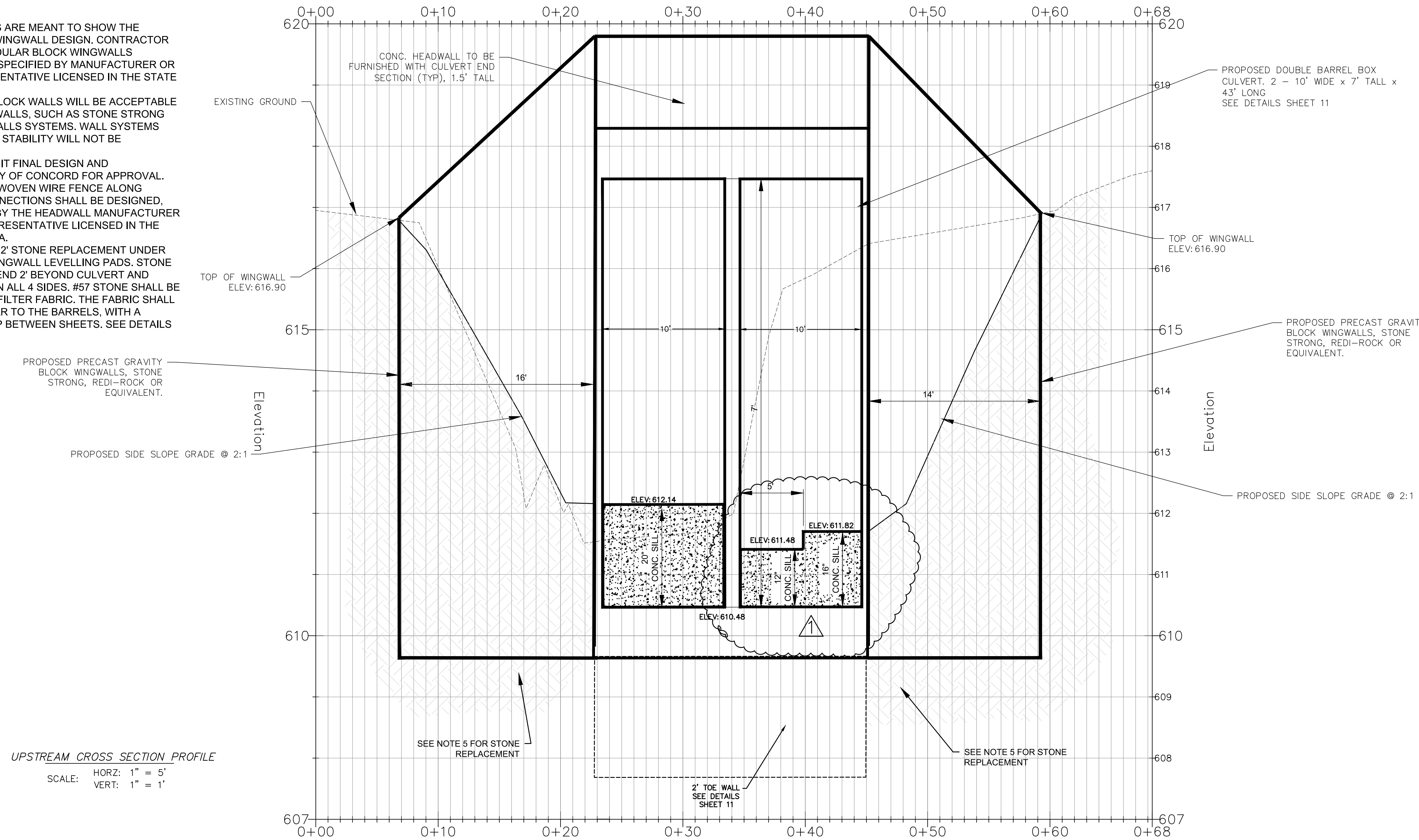
COMPANY NAME	OFFICE	AFTER HOURS EMERGENCY
At&T	N/A	1.800.311.0008
Cobarrus County Emergency Mgmt	1.678.627.5335	1.800.252.1133
Carolina Water - Utilities Inc. (Zemosa Acres)	704.920.2143	704.920.3000
Carolina Water - Utilities Inc. (Zemosa Acres)	704.525.7990	704.525.7990
City of Concord Electric Systems	704.920.5315	704.920.5555
City of Concord Emergency Mgmt	704.920.5528	704.920.5555
Colonial Pipeline Company	704.392.8610	704.392.8610
CSX Railroad	N/A	1.800.332.0144
Duke Energy	1.800.769.5766	1.800.769.5766
NC Dept. of Transportation	704.982.0174	704.986.5700
NC One Call Center Area Rep.	1.336.855.5760	1.800.632.4949
Norfolk Southern Railway	N/A	1.800.453.2330
North Carolina Railroad Company	919.954.7601	N/A
Piedmont Natural Gas (aka NCGN)	704.364.3100	1.800.752.7564
Plantation Pipeline	N/A	1.800.518.5678
PG&E Energy Concord	704.723.4310	1.877.776.2427
Sprint Embury	N/A	1.888.723.8010
Time Warner Cable Concord	704.378.2856	704.378.2626
Union Power	N/A	1.800.922.6869
UtiliQuest Locator Concord	704.864.8333	1.800.632.4949
Water & Sewer Authority of Cabarrus Co.	704.785.1753	704.786.1644
Whitstream	704.722.2000	1.800.800.6669

NOTE: SOME OF THE ABOVE COMPANIES DO NOT SUBSCRIBE TO CAROLINA ONE CALL (FORMERLY ULOCD)

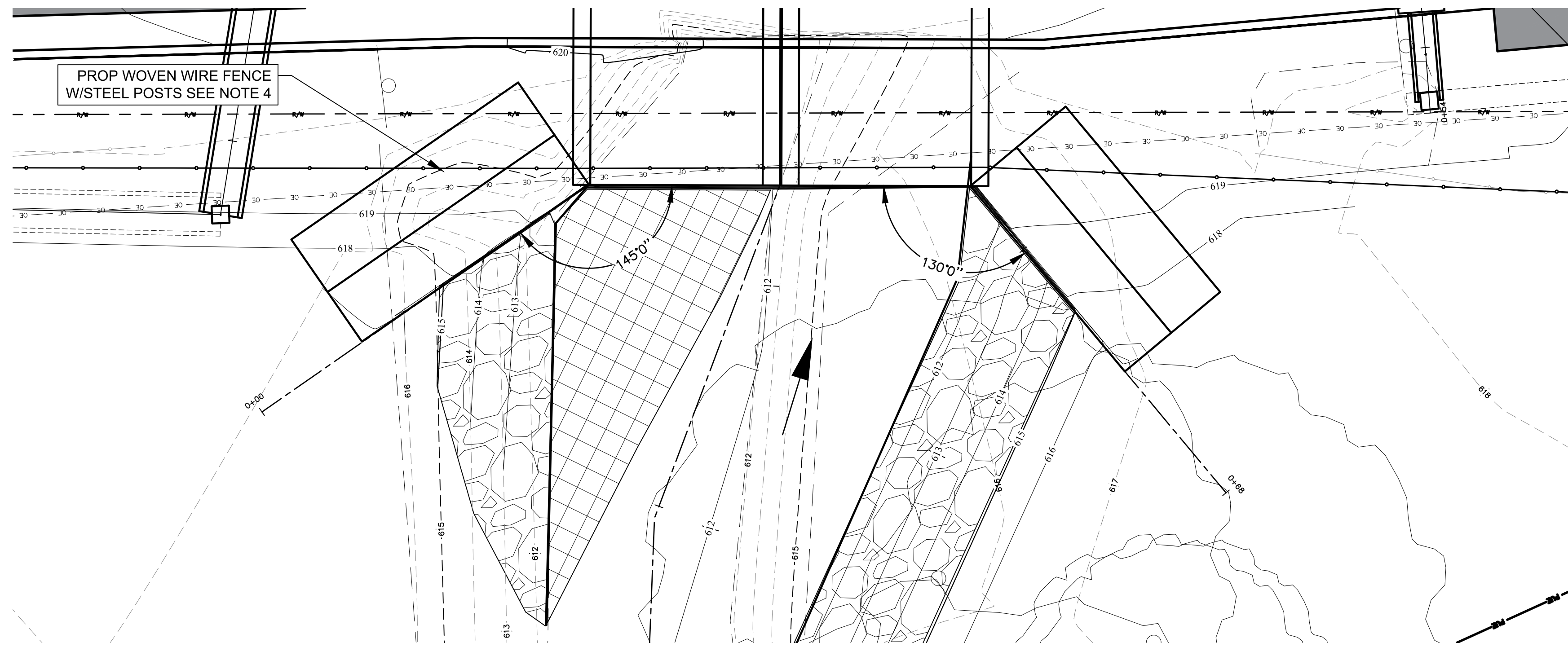
NORTH CAROLINA ONE CALL 1-800-632-4949

NOTE:

1. THESE PLANS AND DETAILS ARE MEANT TO SHOW THE GENERAL INTENT OF THE WINGWALL DESIGN. CONTRACTOR SHALL HAVE PRECAST MODULAR BLOCK WINGWALLS DESIGNED, DETAILED AND SPECIFIED BY MANUFACTURER OR MANUFACTURER'S REPRESENTATIVE LICENSED IN THE STATE OF NORTH CAROLINA.
2. ONLY PRECAST GRAVITY BLOCK WALLS WILL BE ACCEPTABLE FOR THE CULVERTS WINGWALLS, SUCH AS STONE STRONG OR REDI-ROCK GRAVITY WALLS SYSTEMS. WALL SYSTEMS RELYING ON GEOGRID FOR STABILITY WILL NOT BE ACCEPTABLE.
3. CONTRACTOR SHALL SUBMIT FINAL DESIGN AND CALCULATIONS TO THE CITY OF CONCORD FOR APPROVAL.
4. CONTRACTOR TO INSTALL WOVEN WIRE FENCE ALONG CULVERT HEADWALL. CONNECTIONS SHALL BE DESIGNED, DETAILED AND SPECIFIED BY THE HEADWALL MANUFACTURER OR MANUFACTURER'S REPRESENTATIVE LICENSED IN THE STATE OF NORTH CAROLINA.
5. CONTRACTOR TO INSTALL 2' STONE REPLACEMENT UNDER CULVERT BEDDING AND WINGWALL LEVELLING PADS. STONE REPLACEMENT SHALL EXTEND 2' BEYOND CULVERT AND WINGWALLS FOOTPRINT ON ALL 4 SIDES. #57 STONE SHALL BE ENCAPSULATED IN TYPE 4 FILTER FABRIC. THE FABRIC SHALL BE PLACED PERPENDICULAR TO THE BARRELS, WITH A MINIMUM OF 2' OF OVERLAP BETWEEN SHEETS. SEE DETAILS IN SHEET 11.



UPSTREAM CROSS SECTION PROFILE
SCALE: HORIZ: 1" = 5'
VERT: 1" = 1'



PLAN
SCALE: 1" = 5'

PROTECTION OF EXISTING UTILITIES

THE CONTRACTOR SHALL CONTACT THE APPROPRIATE AGENCY FOR THE EXACT FIELD LOCATIONS OF ALL WATER, SEWER, ELECTRIC, TELEPHONE, TELEVISION AND ANY OTHER UNDERGROUND AND OVERHEAD UTILITY BEFORE STARTING CONSTRUCTION. THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE CONTRACT DRAWINGS IS NOT TO BE CONSIDERED AS THE NONEXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF WORK.

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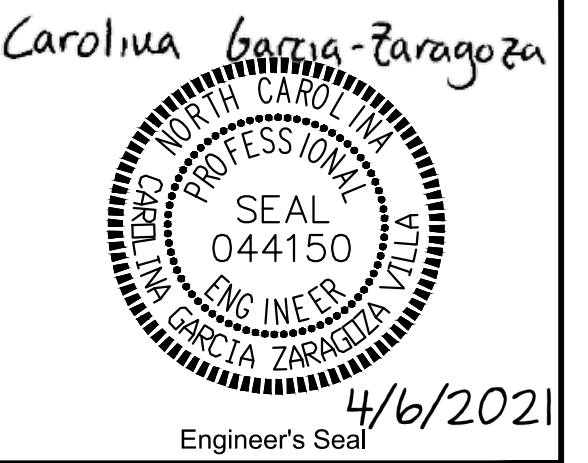
COMPANY NAME	OFFICE	AFTER HOURS EMERGENCY
Atmos	N/A	1-800-252-1133
AT&T	1-678-627-5335	1-800-252-1133
Cabarrus County Emergency Mgmt	704-920-2143	704-920-1000
Carolina Water - Utilities Inc. (Zemosa Acres)	704-525-7990	704-525-7990
City of Concord Electric Systems	704-920-5315	704-920-5555
City of Concord Emergency Mgmt	704-920-5528	704-920-5555
Colonial Pipeline Company	704-392-8610	704-392-8610
CSX Railroad	N/A	1-800-232-0144
Duke Energy	1-800-769-3766	1-800-769-3766
NC Dept. of Transportation	704-982-0174	704-986-3700 State Co Comm
NC One Call Center Area Rep.	1-336-855-5760	1-800-652-4949
North Carolina Railroad	N/A	1-800-452-2250
North Carolina Railroad Company	919-954-7601	N/A
Piedmont Natural Gas (aka NCGW)	704-364-3100	1-800-752-7564
Plantation Pipeline	N/A	1-800-518-5678
PG&E Energy Concord	704-723-4310	1-877-784-2427
Sprint Embury	N/A	1-888-723-8010
Time Warner Cable Concord	704-378-2856	704-378-2626 Option 5, 2, 1
Union Power	N/A	1-800-922-6869
UtiliQuest Locator Concord	704-864-8333	1-800-632-4949 NC One Call
Water & Sewer Authority of Cabarrus Co.	704-785-1783	704-786-1644 (BURNETT)
WasteStream	704-722-2000	1-800-800-6669

NOTE: SOME OF THE ABOVE COMPANIES DO NOT SUBSCRIBE TO CAROLINA ONE CALL (FORMERLY ULOCD)

NORTH CAROLINA ONE CALL 1-800-632-4949



PREPARED BY
ENGINEERING DEPARTMENT
CITY OF CONCORD
P.O. BOX 308
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Surveyor's Seal

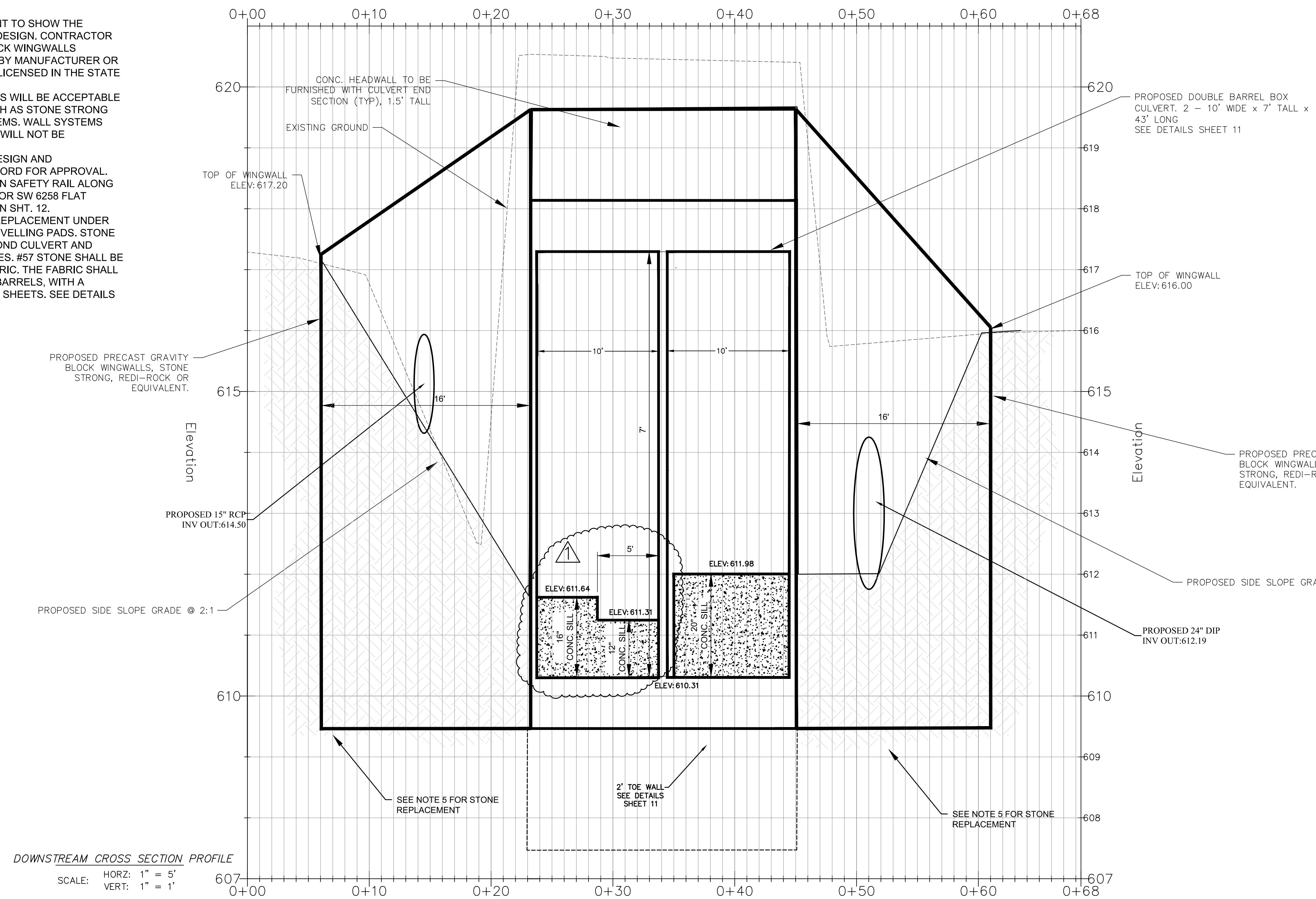
DUVAL ST CULVERT
REPLACEMENT
UPSTREAM
PLAN & PROFILE
PROJECT # : 2014-009

REV #	DATE	DESCRIPTION	BY	BC
0	03/24/21	FINAL FOR CONSTRUCTION	BCC	BCC
1	04/06/21	REVISED CONCRETE SILL PER NCDCE COMMENTS		

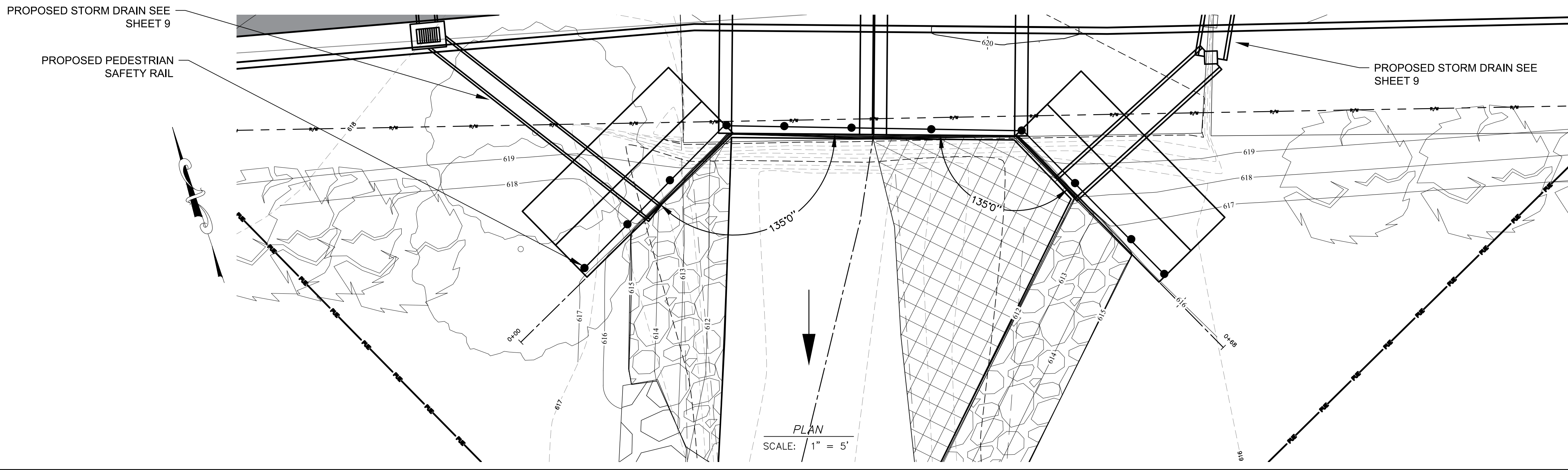
DESIGNED BY: CZG
DRAWN BY: BCC
CHECKED BY: CZG
SCALE: AS SHOWN
DATE: 02/18/21
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SHEET: 6 OF: 16

NOTE:

1. THESE PLANS AND DETAILS ARE MEANT TO SHOW THE GENERAL INTENT OF THE WINGWALL DESIGN. CONTRACTOR SHALL HAVE PRECAST MODULAR BLOCK WINGWALLS DESIGNED, DETAILED AND SPECIFIED BY MANUFACTURER OR MANUFACTURER'S REPRESENTATIVE LICENSED IN THE STATE OF NORTH CAROLINA.
2. ONLY PRECAST GRAVITY BLOCK WALLS WILL BE ACCEPTABLE FOR THE CULVERTS WINGWALLS, SUCH AS STONE STRONG OR REDI-ROCK GRAVITY WALLS SYSTEMS. WALL SYSTEMS RELYING ON GEOGRID FOR STABILITY WILL NOT BE ACCEPTABLE.
3. CONTRACTOR SHALL SUBMIT FINAL DESIGN AND CALCULATIONS TO THE CITY OF CONCORD FOR APPROVAL.
4. CONTRACTOR TO INSTALL PEDESTRIAN SAFETY RAIL ALONG HEADWALLS / WINGWALLS. PAINT COLOR SW 6258 FLAT SHEEN, OR EQUIVALENT. SEE DETAIL IN SHT. 12.
5. CONTRACTOR TO INSTALL 2' STONE REPLACEMENT UNDER CULVERT BEDDING AND WINGWALL LEVELLING PADS. STONE REPLACEMENT SHALL EXTEND 2' BEYOND CULVERT AND WINGWALLS FOOTPRINT ON ALL 4 SIDES. #57 STONE SHALL BE ENCAPSULATED IN TYPE 4 FILTER FABRIC. THE FABRIC SHALL BE PLACED PERPENDICULAR TO THE BARRELS, WITH A MINIMUM OF 2' OF OVERLAP BETWEEN SHEETS. SEE DETAILS IN SHEET 11.



DOWNSTREAM CROSS SECTION PROFILE
SCALE: HORIZ: 1" = 5'
VERT: 1" = 1'



PLAN
SCALE: 1" = 5'

PROTECTION OF EXISTING UTILITIES
THE CONTRACTOR SHALL CONTACT THE APPROPRIATE AGENCY FOR THE EXACT FIELD LOCATIONS OF ALL WATER, SEWER, ELECTRIC, TELEPHONE AND ANY OTHER UNDERGROUND AND OVERHEAD UTILITY BEFORE STARTING CONSTRUCTION. THE DRAWINGS IS NOT TO BE CONSIDERED AS THE NONEXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF WORK.

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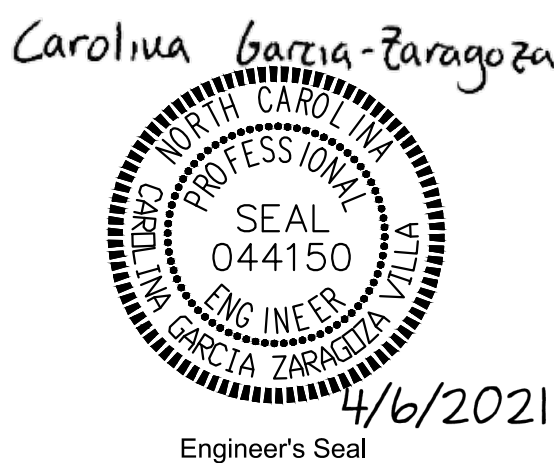
COMPANY NAME	OFFICE	AFTER HOURS EMERGENCY
Atex	N/A	1-800-252-1133
AT&T	1-678-627-5335	704-920-1000
Cabarrus County Emergency Mgmt	704-920-2143	704-920-1000
Carolina Water - Utilities Inc. (Zemosa Acres)	1-800-252-1133	704-525-7990
Carolina Water - Utilities Inc. (Zemosa Acres)	704-525-7990	704-525-7990
City of Concord Electric Systems	704-920-5315	704-920-5555
City of Concord Emergency Mgmt	704-920-5528	704-920-5555
Colonial Pipeline Company	704-392-8610	704-392-8610
CSX Railroad	N/A	1-800-332-0144
Duke Energy	1-800-769-3766	1-800-769-3766
NC Dept. of Transportation	704-982-0104	704-986-3700
NC One Call Center Area Rep.	1-336-855-5760	1-800-652-4949
North Carolina Railroad	N/A	1-800-452-2539
North Carolina Railroad Company	919-954-7601	N/A
Piedmont Natural Gas (aka NCGN)	704-364-3100	1-800-752-7664
Plantation Pipeline	N/A	1-800-518-5678
PSC Energy Concord	704-723-4310	1-877-784-2427
Sprint Embury	N/A	1-888-723-8010
Time Warner Cable Concord	704-378-2856	704-378-2626
Union Power	N/A	1-800-922-0859
UtiliQuest Locator Concord	704-864-8333	1-800-632-4949
Water & Sewer Authority of Cabarrus Co.	704-785-1783	704-788-6164
Whitstream	704-722-2000	1-800-800-6669

NOTE: SOME OF THE ABOVE COMPANIES DO NOT SUBSCRIBE TO CAROLINA ONE CALL (FORMERLY ULCCD)

NORTH CAROLINA ONE CALL 1-800-632-4949



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ENGINEERING DEPARTMENT
CITY OF CONCORD
P.O. BOX 308
CONCORD N.C. 28026
(704) 920-5425



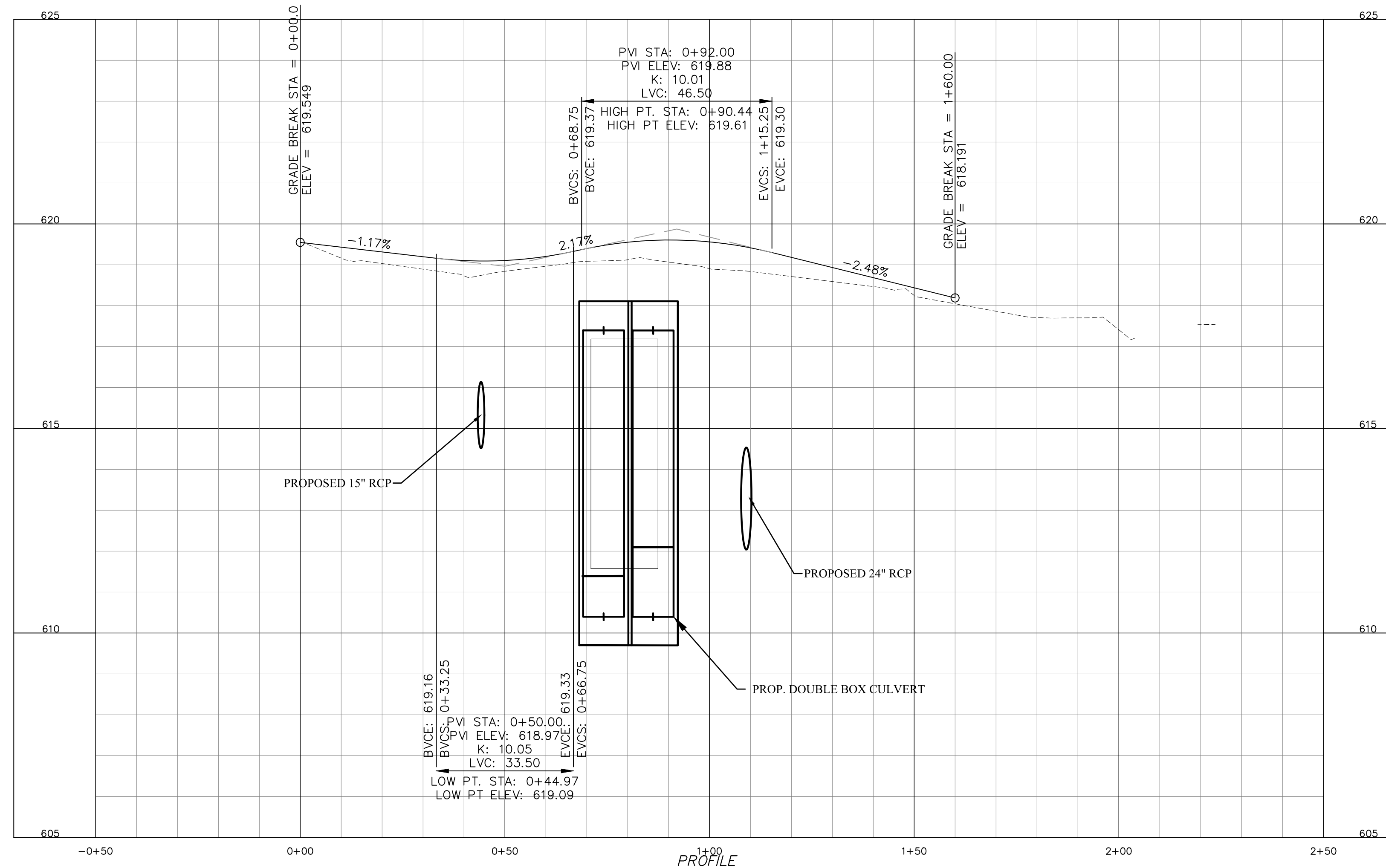
Engineer's Seal

Surveyor's Seal

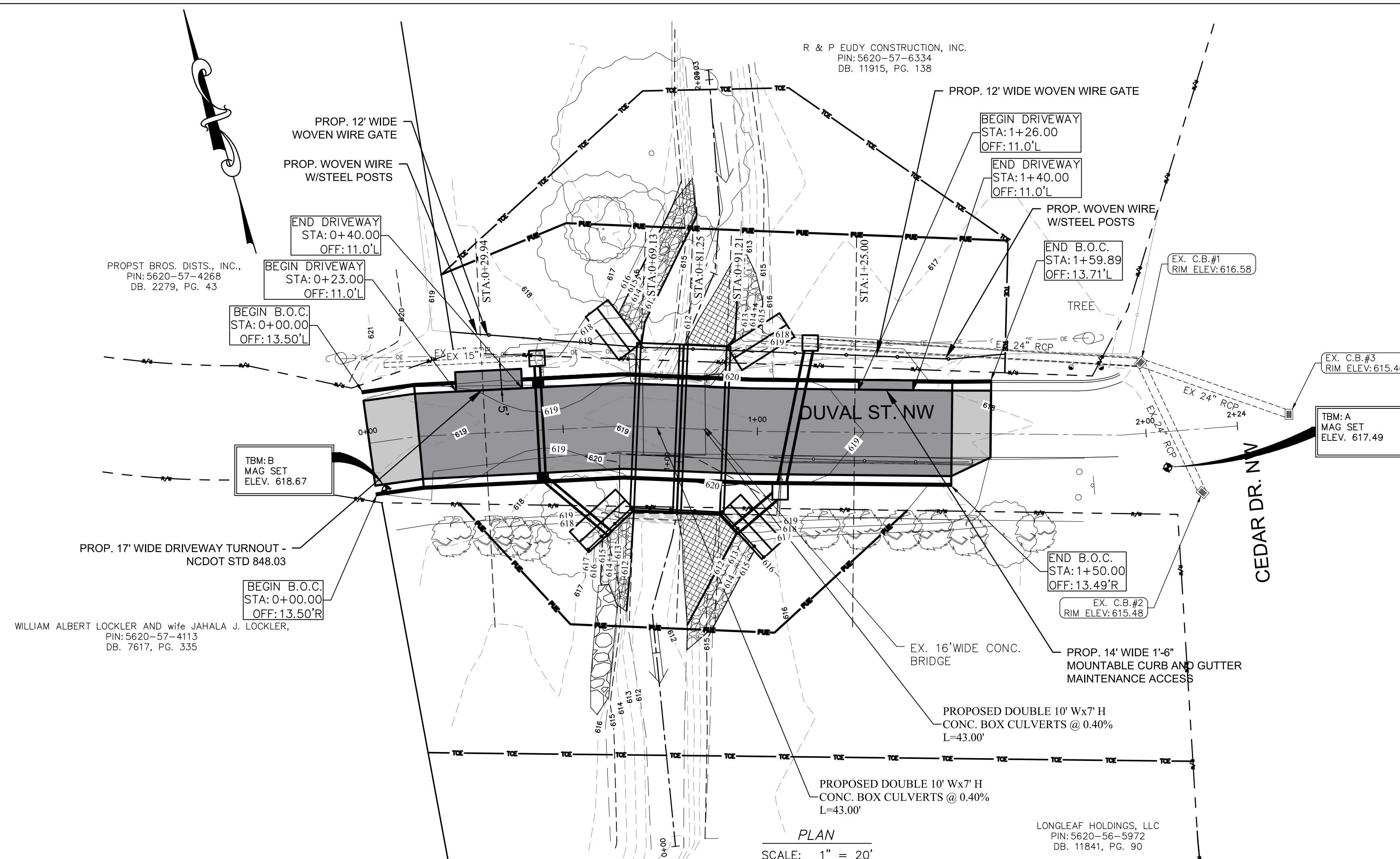
DUVAL ST CULVERT
REPLACEMENT
DOWNSTREAM
PLAN & PROFILE
PROJECT # : 2014-009

REV #	DATE	DESCRIPTION
0	03/24/21	FINAL FOR CONSTRUCTION
1	04/06/21	REVISED CONCRETE SILL PER NCDEQ COMMENTS

DESIGNED BY: CGZ
DRAWN BY: BCC
CHECKED BY: CGZ
SCALE: AS SHOWN
DATE: 02/18/21
PROJECT NUMBER: 2014-009
SHEET: 7 OF: 16



1+00
PROFILE
SCALE: HORZ: 1" = 20'
VERT: 1" = 2'



PLAN
SCALE: 1" = 20'

PROTECTION OF EXISTING UTILITIES
THE CONTRACTOR SHALL CONTACT THE APPROPRIATE AGENCY FOR THE EXACT FIELD LOCATIONS OF ALL WATER, SEWER, ELECTRIC, TELEPHONE, TELEVISION AND ANY OTHER UNDERGROUND AND OVERHEAD UTILITY BEFORE STARTING CONSTRUCTION. THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE CONTRACT DRAWINGS IS NOT TO BE CONSIDERED AS THE NONEXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF WORK.

THE FOLLOWING LISTING OF UTILITY COMPANIES (WHICH MAY OR MAY NOT BE COMPLETE) MAY HAVE EXISTING UNDERGROUND OR OVERHEAD UTILITIES IN THE CONTRACT VICINITY.

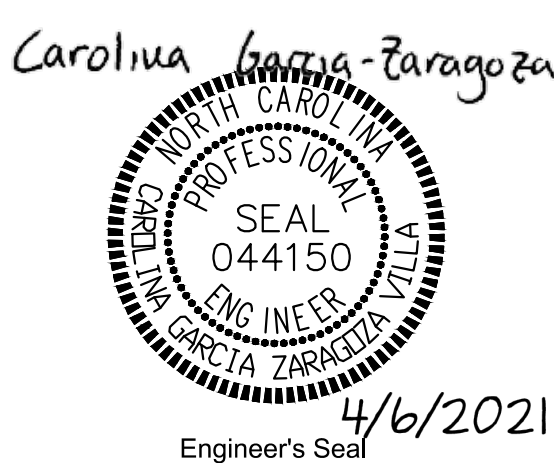
COMPANY NAME	OFFICE	AFTER HOURS EMERGENCY
Atty	N/A	1.800.251.1133
Cobarrus County Emergency Mgmt	1.678.627.5335	1.800.251.1133
Cobarrus Water - Utilities Inc. (Zemosa Acres)	704.525.7990	704.525.7990
City of Concord Electric Systems	704.920.5315	704.920.5555
City of Concord Emergency Mgmt	704.920.5528	704.920.5555
Colonial Pipeline Company	704.392.8610	704.392.8610
CSX Railroad	N/A	1.800.232.0144
Duke Energy	1.800.769.3786	1.800.769.3786
NC Dept. of Transportation	704.982.0104	704.986.3700
NC One Call Center Area Rep.	1.336.855.5760	1.800.651.4949
Norfolk Southern Railway	N/A	1.800.451.2539
North Carolina Railroad Company	919.954.7601	N/A
Piedmont Natural Gas (aka NCGW)	704.364.3100	1.800.752.7564
Plantation Pipeline	N/A	1.800.518.5678
Piedmont Natural Gas	704.723.4310	1.877.781.2427
Sprint Embury	N/A	1.888.723.8010
Time Warner Cable Concord	704.378.2856	704.378.2626
Union Power	N/A	1.800.922.6869
UtiliQuest Locator Concord	704.864.8333	1.800.632.4949
Water & Sewer Authority of Cabarrus Co.	704.785.1783	704.786.1644
Whitstream	704.722.2000	1.800.800.6669

NOTE: SOME OF THE ABOVE COMPANIES DO NOT SUBSCRIBE TO CAROLINA ONE CALL (FORMERLY ULCCD)

NORTH CAROLINA ONE CALL 1-800-632-4949



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CITY OF CONCORD
P.O. BOX 308
CONCORD N.C. 28026
(704) 920-5425

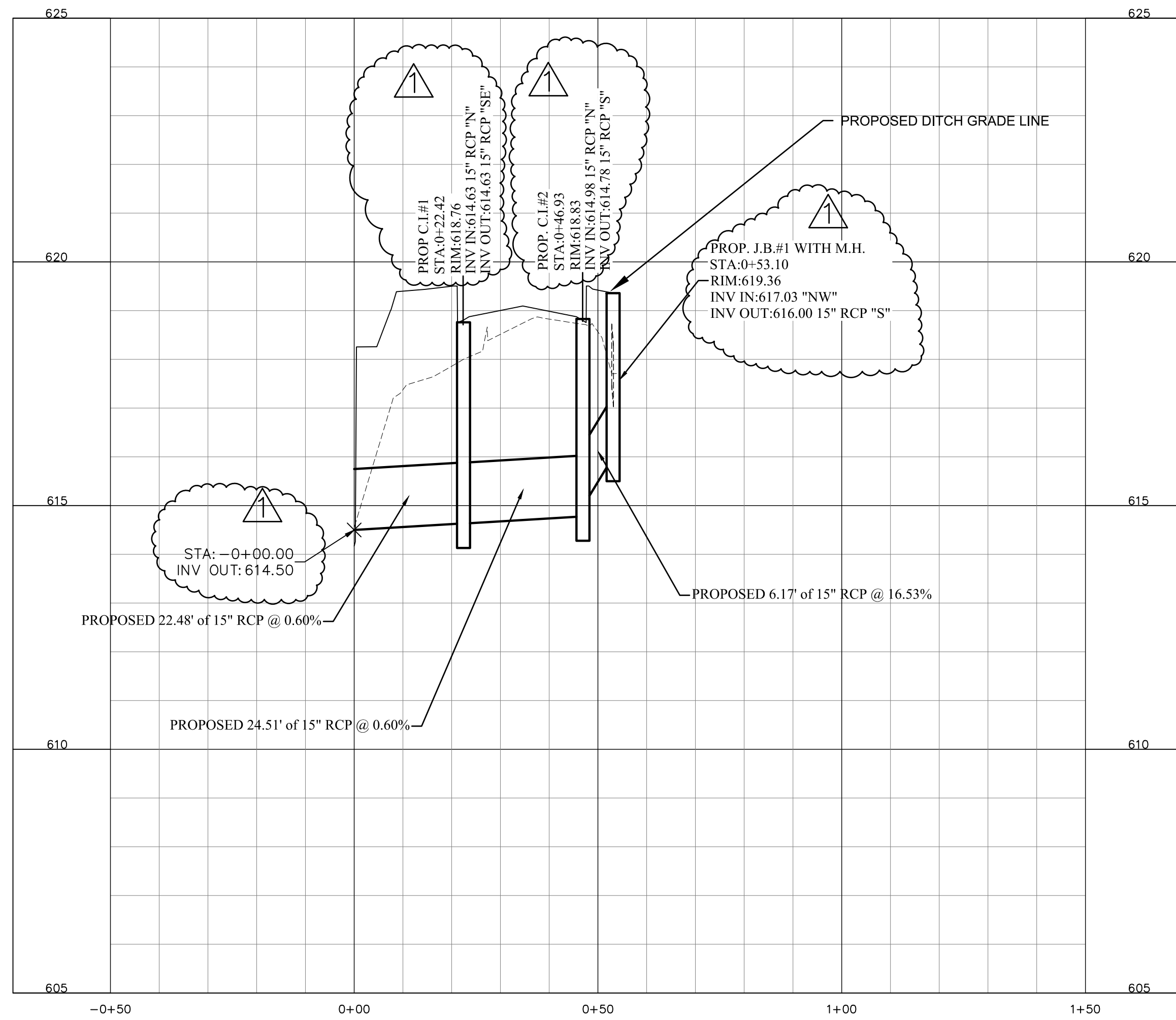


Surveyor's Seal

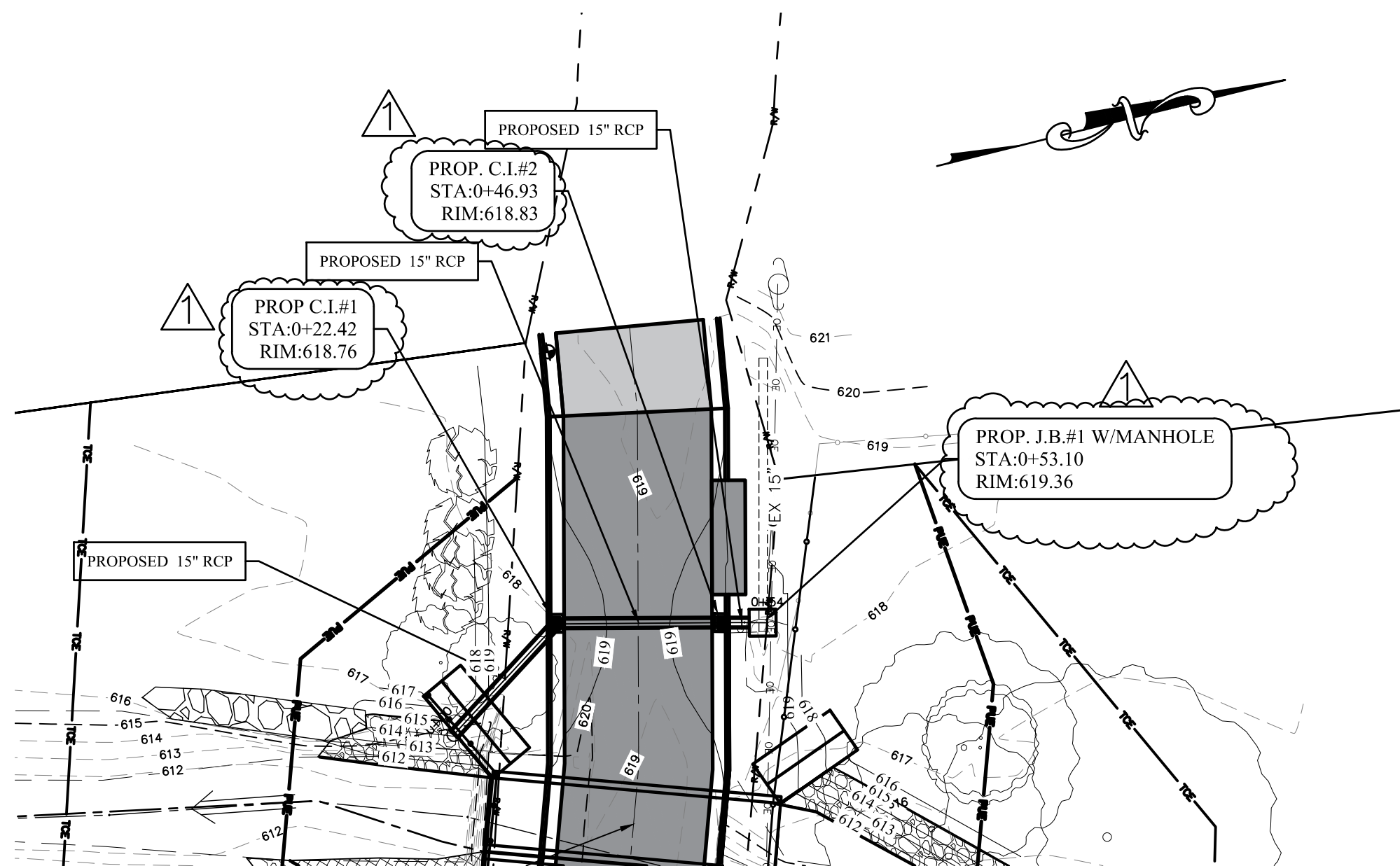
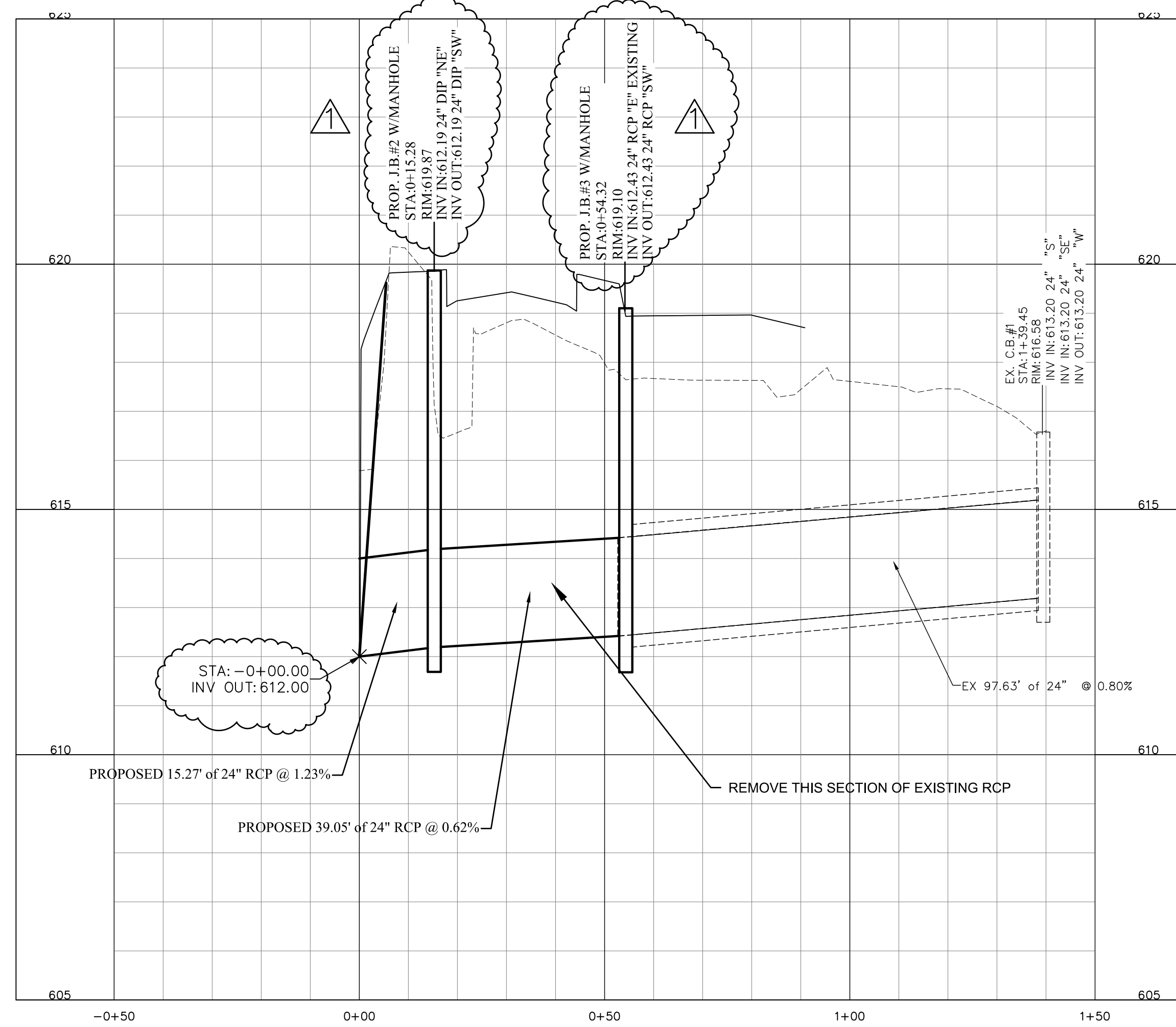
DUVAL ST CULVERT
REPLACEMENT
ROADWAY
PLAN & PROFILE
PROJECT # : 2014-009

REV #	DATE	DESCRIPTION
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1	04/06/21	REVISED BASED ON NCDOT COMMENTS

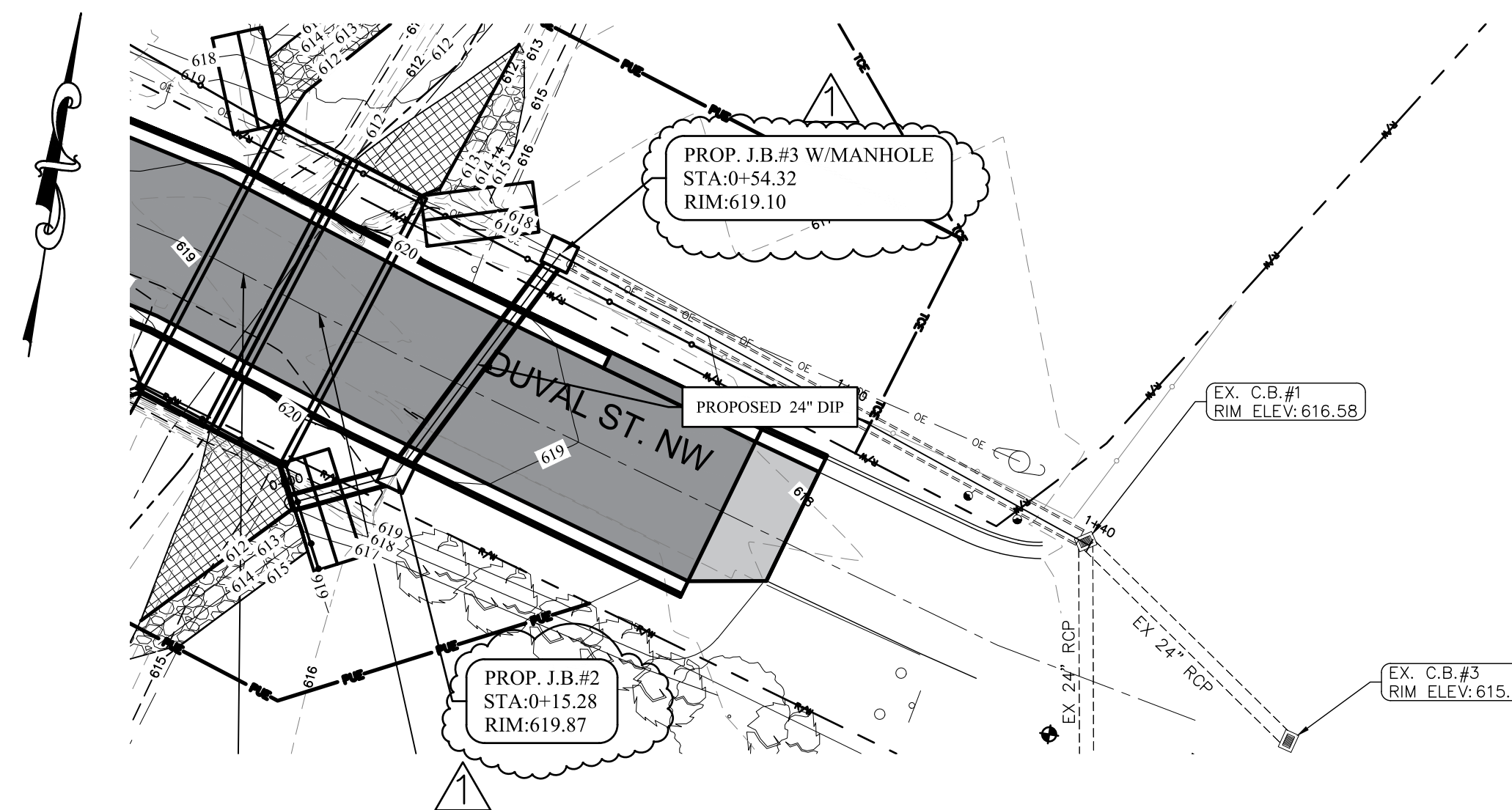
DESIGNED BY: CGZ
DRAWN BY: BCC
CHECKED BY: CGZ
SCALE: AS SHOWN
DATE: 02/18/21
PROJECT NUMBER: 2014-009
SHEET: 8 OF: 16



PROFILE
 SCALE: HORIZ: 1" = 20'
 VERT: 1" = 2'



PLAN
 SCALE: 1" = 20'



PROTECTION OF EXISTING UTILITIES
 THE CONTRACTOR SHALL CONTACT THE APPROPRIATE AGENCY FOR THE EXACT FIELD LOCATIONS OF ALL WATER, SEWER, ELECTRIC, TELEPHONE, TELEVISION AND ANY OTHER UNDERGROUND AND OVERHEAD UTILITY BEFORE STARTING CONSTRUCTION. THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE CONTRACT DRAWINGS IS NOT TO BE CONSIDERED AS THE NONEXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF WORK.

THE FOLLOWING LISTING OF UTILITY COMPANIES (WHICH MAY OR MAY NOT BE COMPLETE) MAY HAVE EXISTING UNDERGROUND OR OVERHEAD UTILITIES IN THE CONTRACT VICINITY.

COMPANY NAME	OFFICE	AFTER HOURS EMERGENCY
AT&T	N/A	1-800-311-0008
Cobarrus County Emergency Mgmt	1-678-627-5335	1-800-252-1133
Carolina Water - Utilities Inc. (Zemosa Acres)	704-920-2143	704-920-3900
City of Concord Electric Systems	704-525-7990	704-525-7990
City of Concord Emergency Mgmt	704-920-5528	704-920-5555
Colonial Pipeline Company	704-392-8610	704-392-8610
CSX Railroad	N/A	1-800-232-0144
Duke Energy	1-800-769-3766	1-800-769-3766
NC Dept. of Transportation	704-982-0174	704-986-3700
NC One Call Center Area Rep.	1-336-855-5760	1-800-651-4949
North Carolina Railroad	N/A	1-800-453-2339
North Carolina Railroad Company	919-954-7601	N/A
Piedmont Natural Gas (aka NCGN)	704-364-3100	1-800-752-7664
Plantation Pipeline	N/A	1-800-518-5678
PG&E Energy Concord	704-723-4310	1-877-738-2427
Sprint Embury	N/A	1-888-723-8010
Time Warner Cable Concord	704-378-2856	704-378-2626
Union Power	N/A	1-800-922-6869
UtiliQuest Locator Concord	704-864-8333	1-800-632-4949
Water & Sewer Authority of Cobarrus Co.	704-785-1783	704-788-1644
WasteStream	704-722-2000	1-800-800-6669

NOTE: SOME OF THE ABOVE COMPANIES DO NOT SUBSCRIBE TO CAROLINA ONE CALL (FORMERLY ULOCC)

NORTH CAROLINA ONE CALL 1-800-632-4949



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 ENGINEERING DEPARTMENT
 CITY OF CONCORD
 P.O. BOX 308
 CONCORD N.C. 28026
 (704) 920-5425

Carolma Garcia-Zaragoza

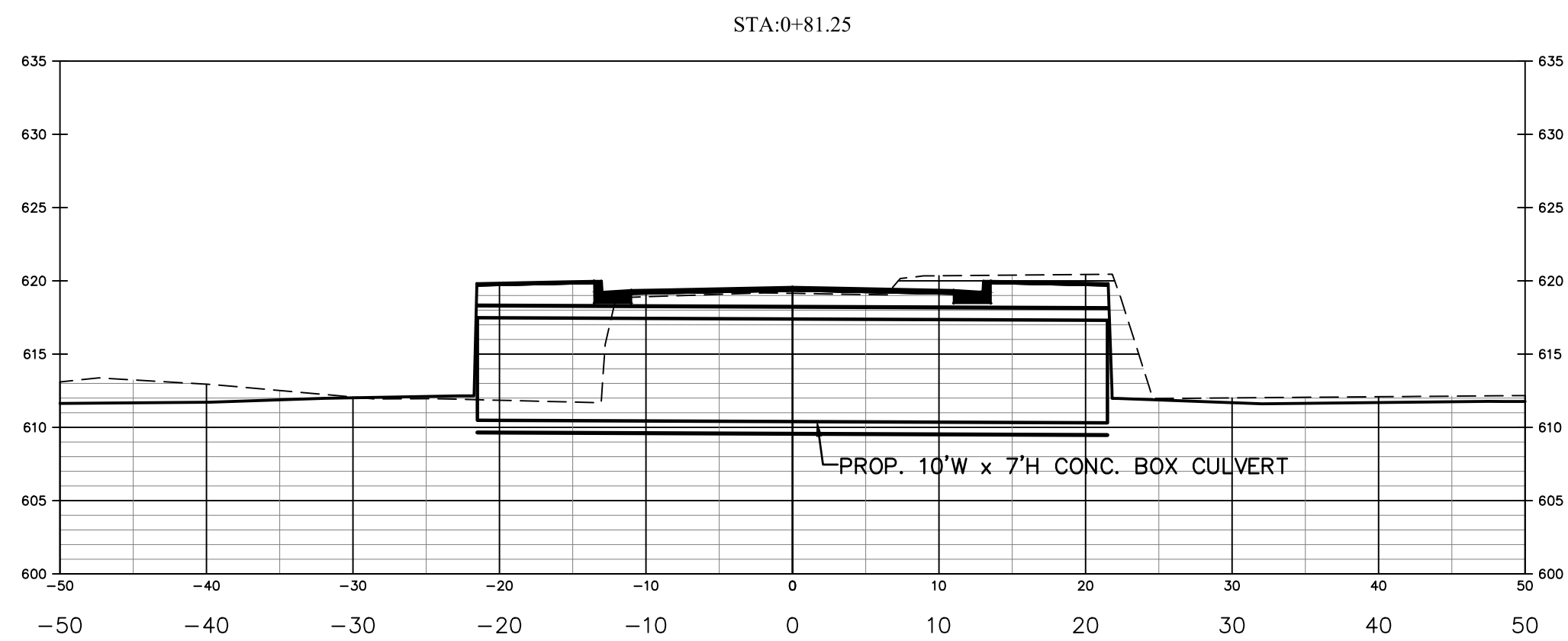
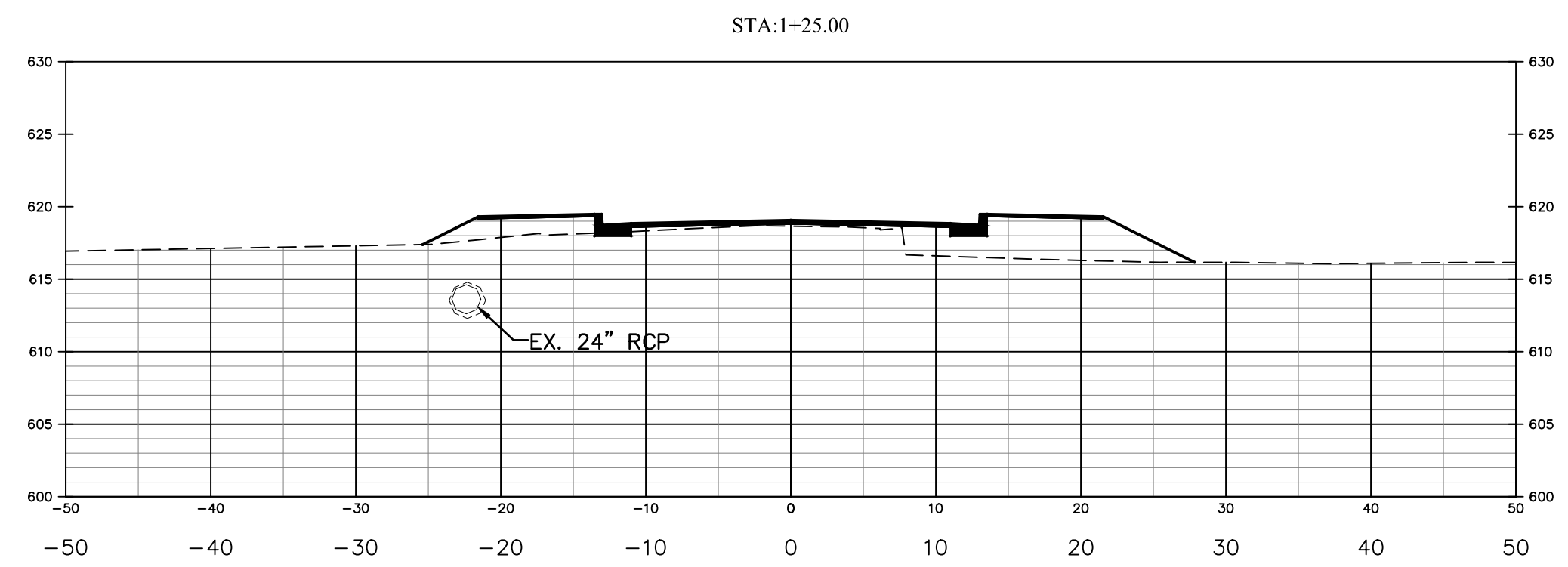
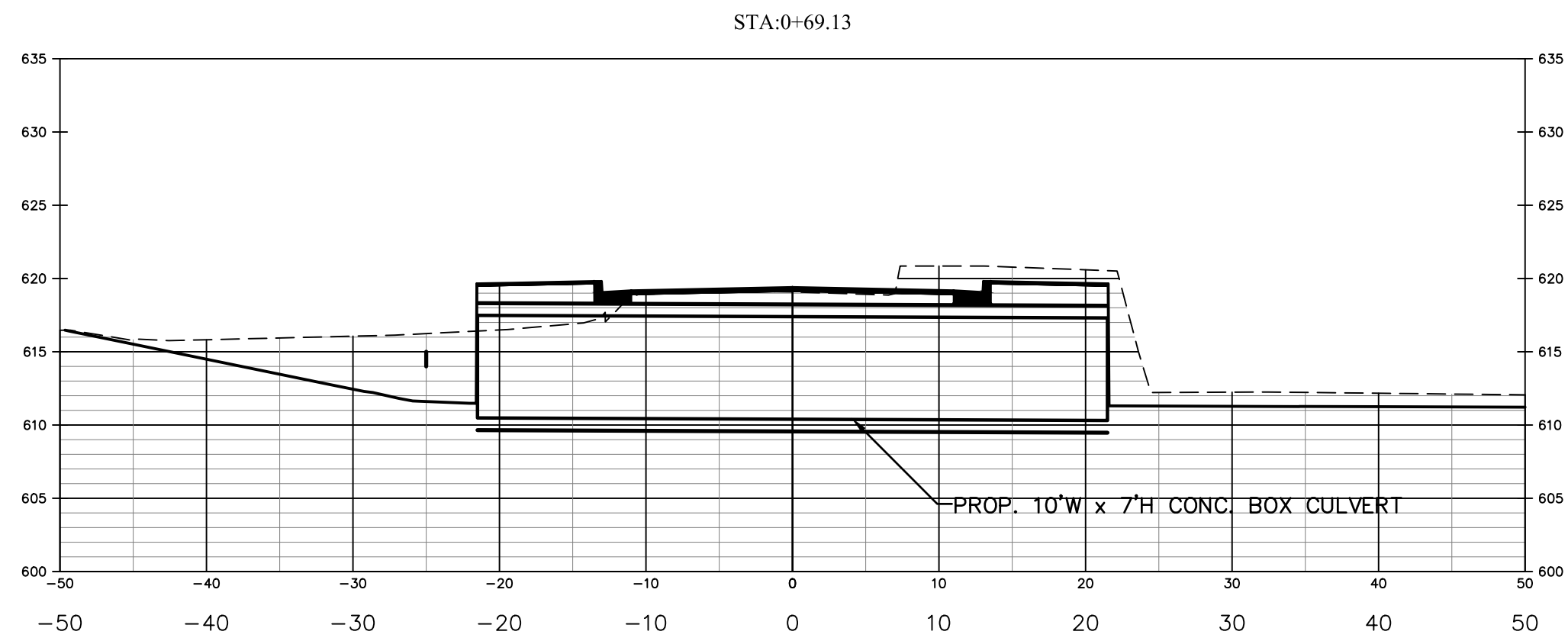
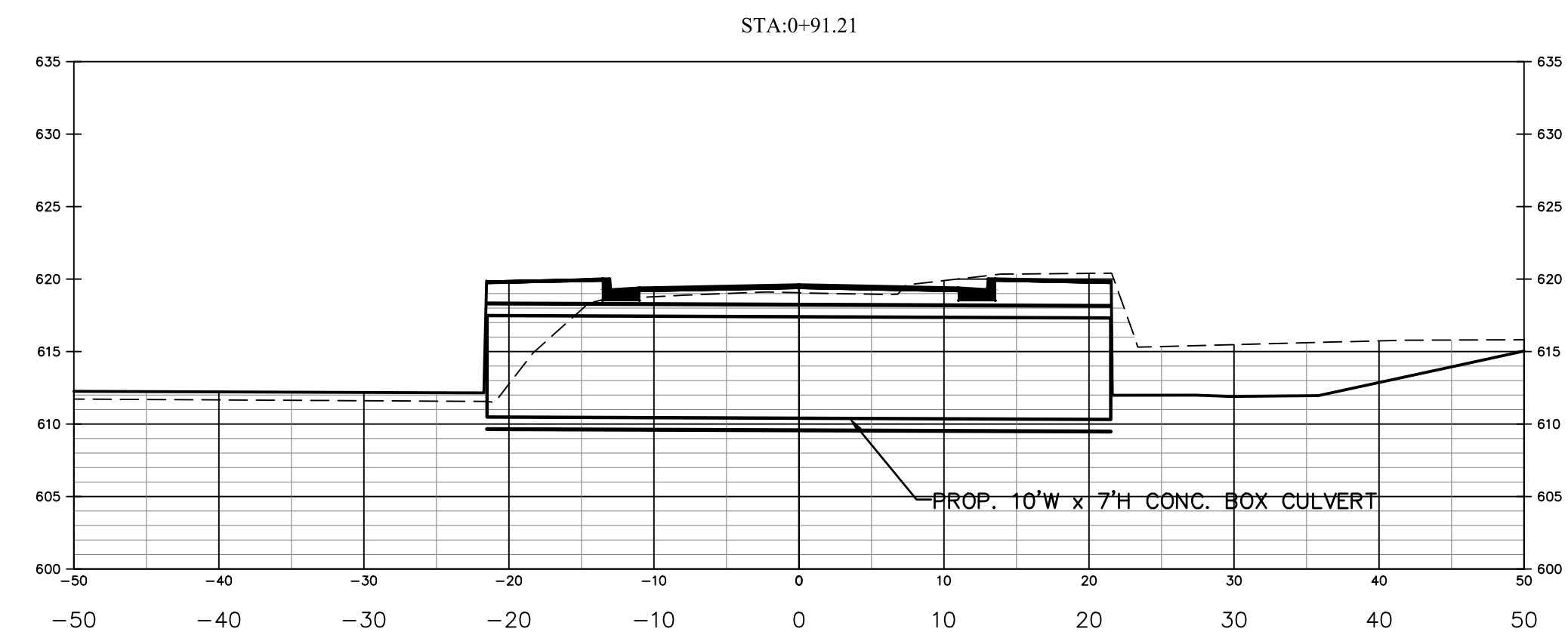
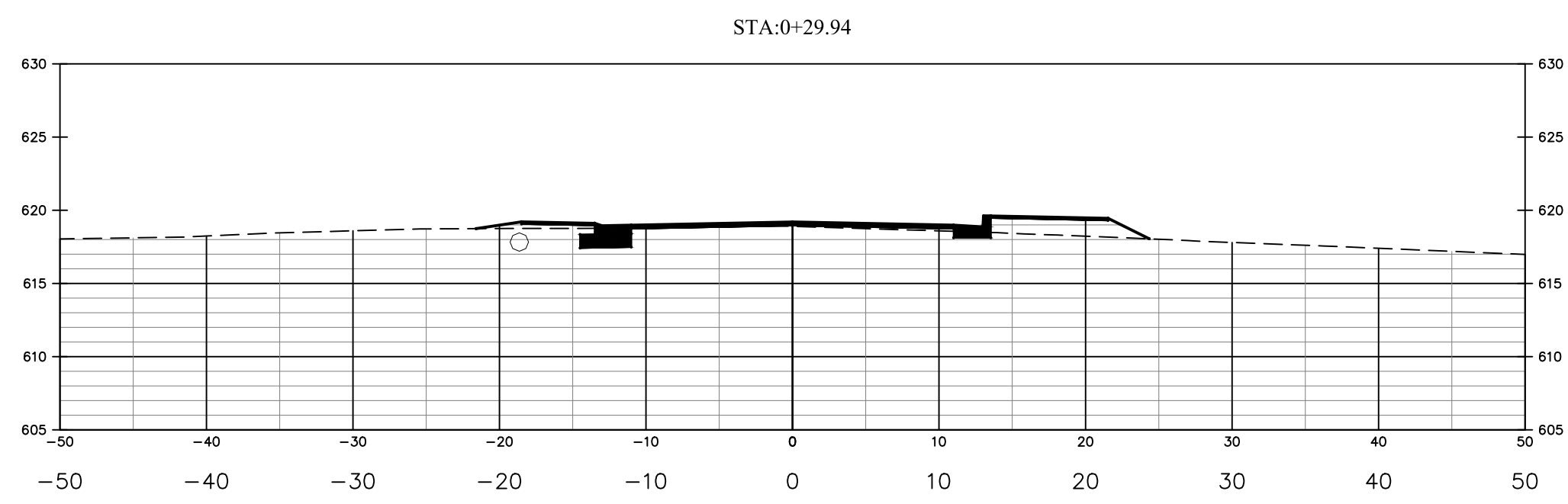
 4/6/2021
 Engineer's Seal

Surveyor's Seal

**DUVAL ST CULVERT
 REPLACEMENT
 STORM SEWER
 PLAN & PROFILE
 PROJECT # : 2014-009**

REV #	DATE	DESCRIPTION	BY
0	03/24/21	FINAL FOR CONSTRUCTION	BCC
1	04/06/21	REVISED STORM STATIONING	BCC

DESIGNED BY: CGZ
 DRAWN BY: BCC
 CHECKED BY: CGZ
 SCALE: AS SHOWN
 DATE: 02/18/21
 PROJECT NUMBER: 2014-009
 SHEET: 9 OF: 10



CROSS SECTIONS
 SCALE: HORIZ: 1" = 10'
 VERT: 1" = 10'



PREPARED BY
 ENGINEERING DEPARTMENT
 CITY OF CONCORD
 P.O. BOX 308
 CONCORD N.C. 28026
 (704) 920-5425

Carolina Garcia-Zaragoza



4/6/2021
 Engineer's Seal

Surveyor's Seal

**DUVAL ST CULVERT
 REPLACEMENT
 CROSS SECTIONS
 PROJECT # : 2014-009**

REV #	DATE	DESCRIPTION	BY
0	03/24/21	FINAL, FOR CONSTRUCTION	BCC
1	04/06/21	REVISED PER NUDEQ COMMENTS	BCC

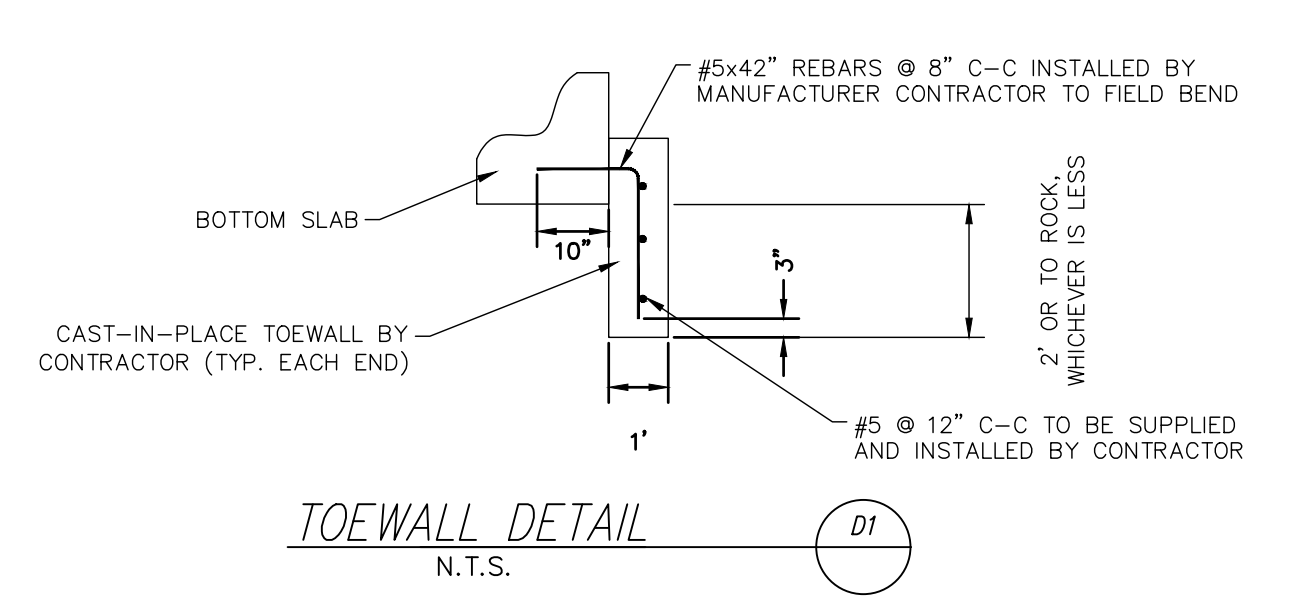
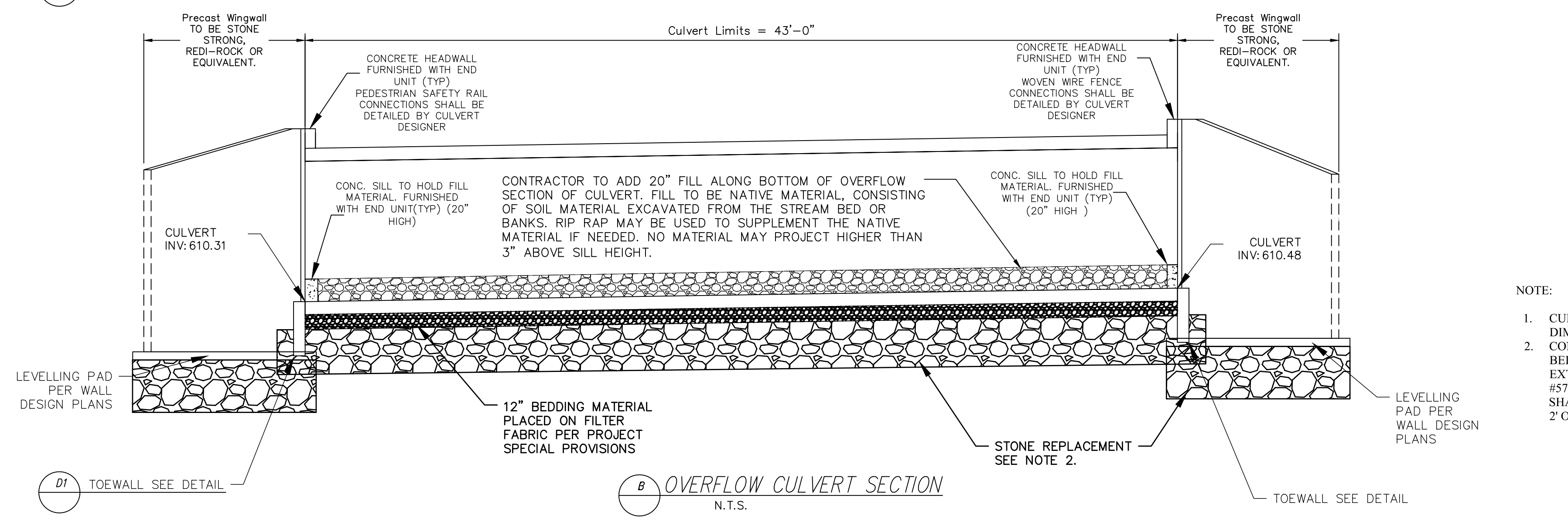
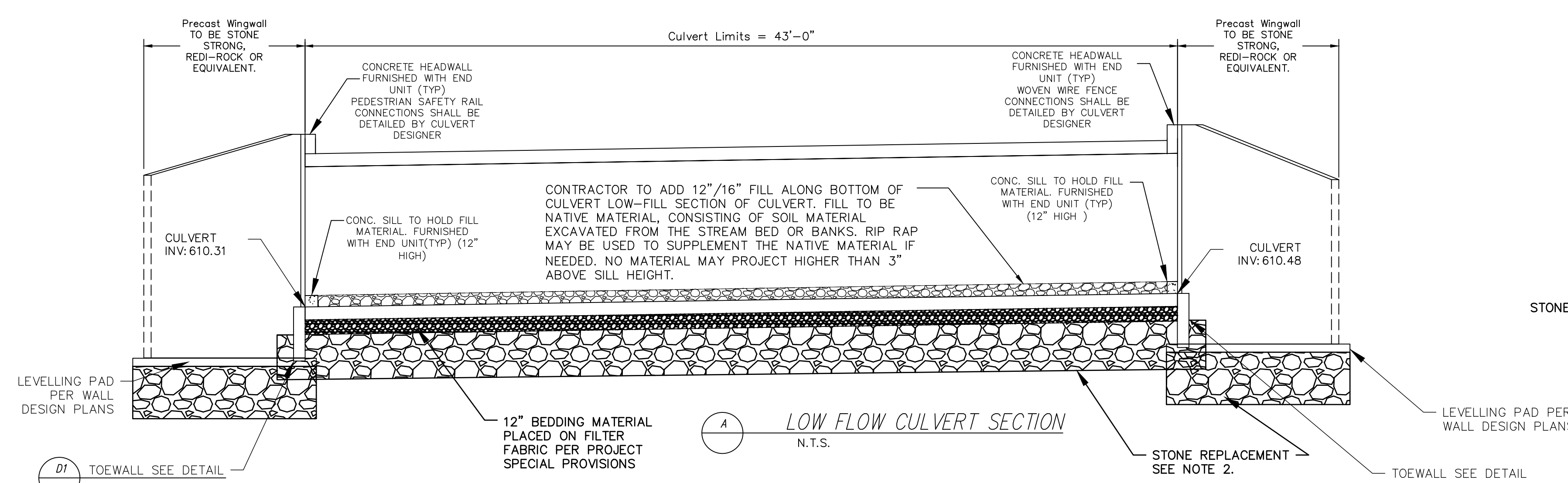
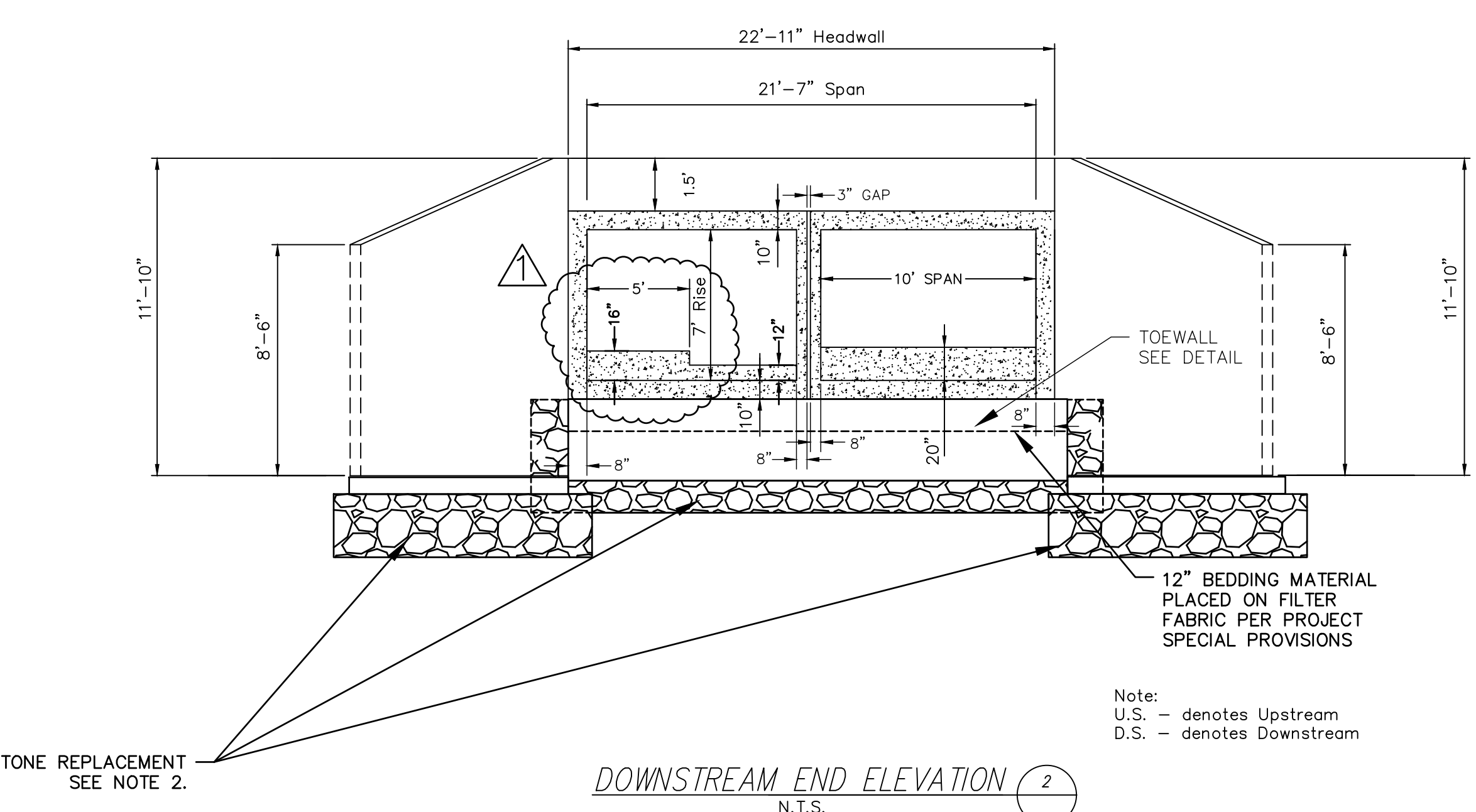
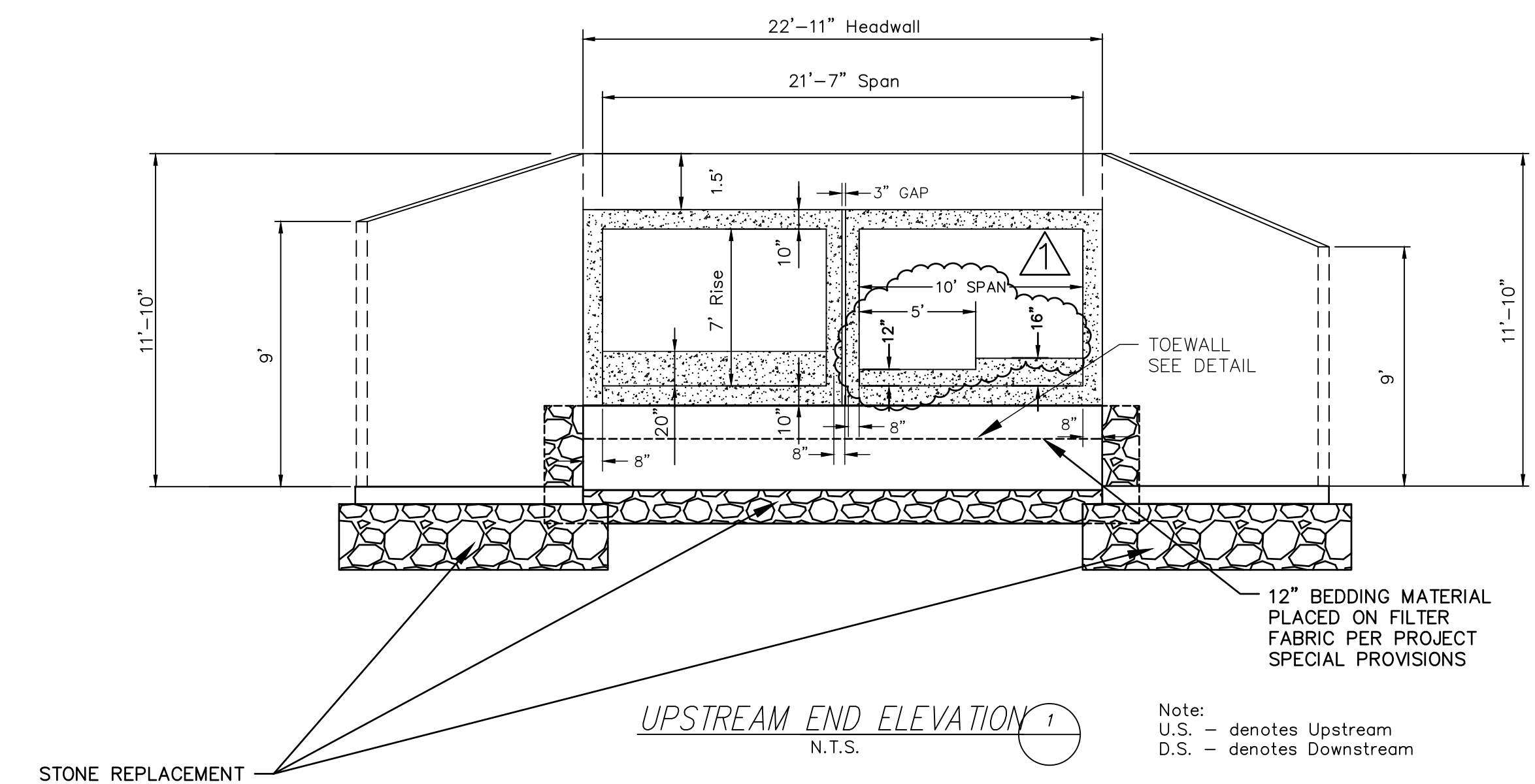
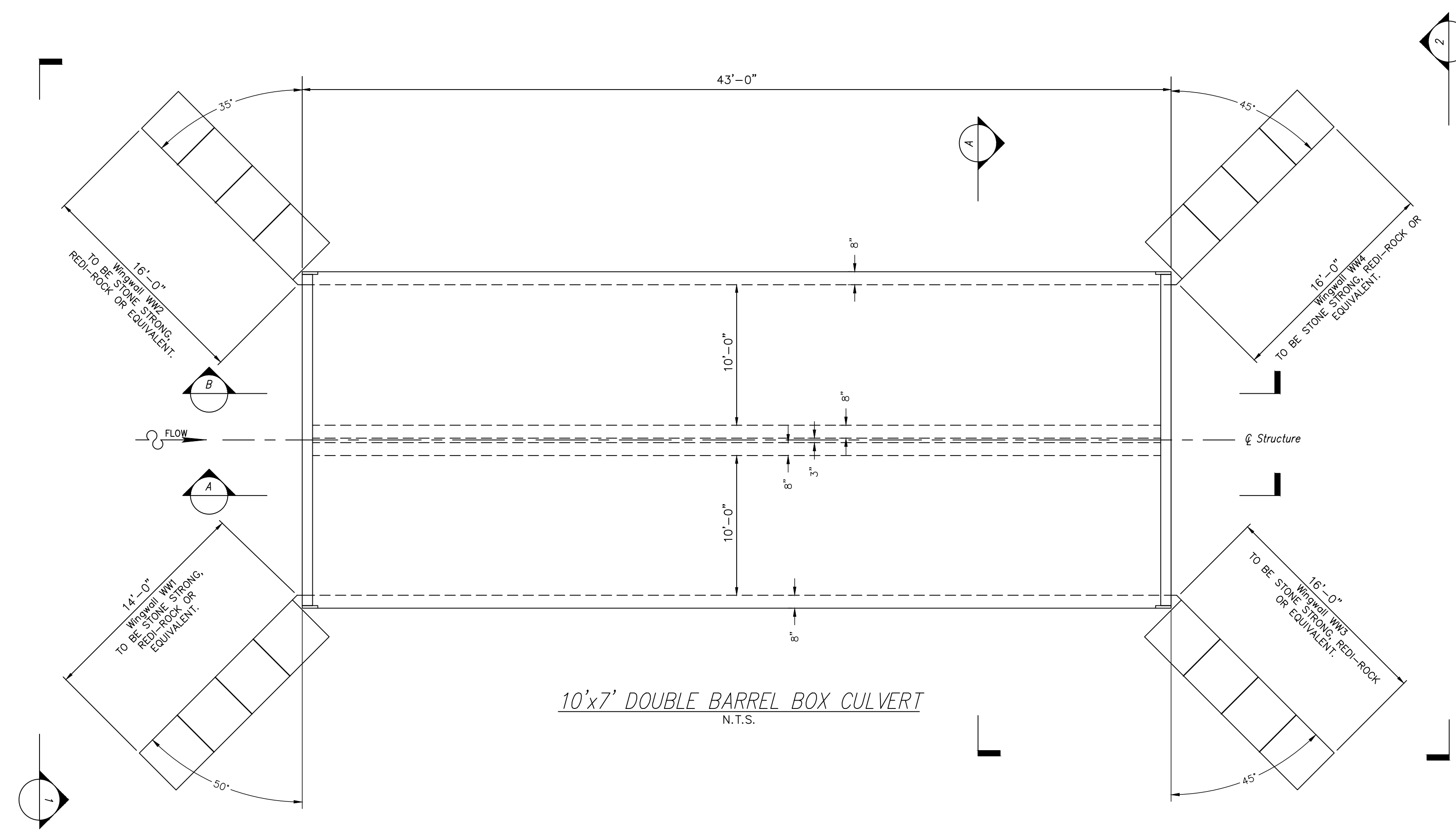
DESIGNED BY: CGZ
 DRAWN BY: BCC
 CHECKED BY: CGZ
 SCALE: AS SHOWN
 DATE: 02/18/21
 PROJECT NUMBER: 2014-009
 SHEET: 10 OF: 16

G:\Engineering Projects\Projects\2014\009 DuvalCulvert\Technical\2014-009 Culvert.dwg Apr 06, 2021 - 10:11 am

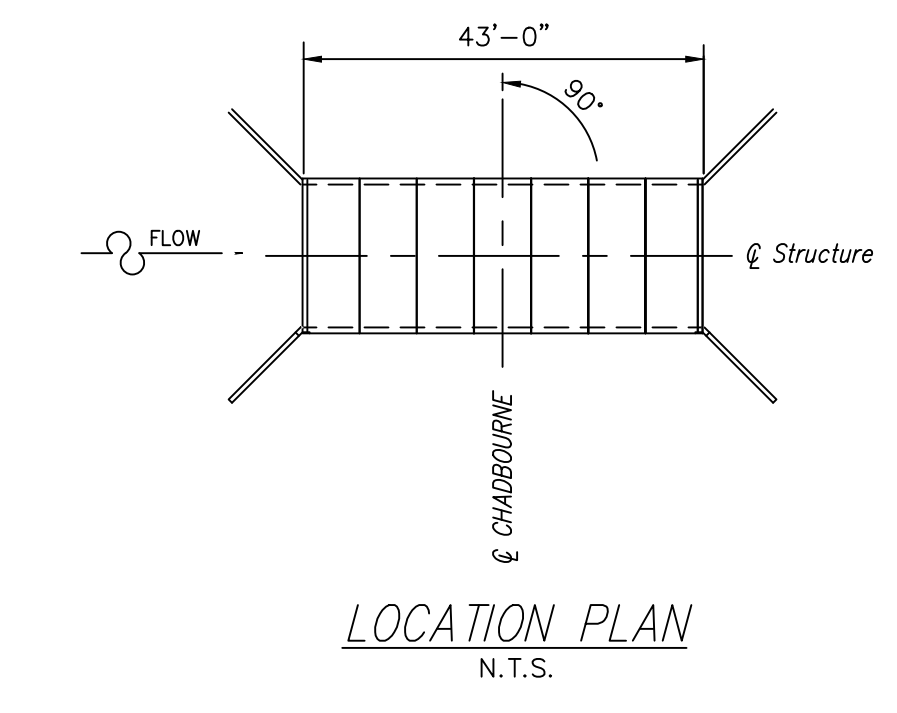
**DUVAL ST
CULVERT REPLACEMENT
CULVERT STANDARD
DETAILS
PROJECT # : 2014-009**

REV. #	DATE	DESCRIPTION	BY
0	03/24/21	FINAL, FOR CONSTRUCTION	BCC
1	04/06/21	REVISED CONCRETE SILL PER NCDEQ COMMENTS	BCC

DESIGNED BY:	CGZ
DRAWN BY:	BCC
CHECKED BY:	CGZ
SCALE:	AS SHOWN
DATE:	02/18/21
PROJECT NUMBER:	2014-009
SHEET:	11 OF 16



- NOTE:
- CULVERT SLAB AND WALL DIMENSIONS ARE PRELIMINARY. FINAL DIMENSIONS TO BE DETERMINED BY CULVERT STRUCTURAL DESIGNER.
 - CONTRACTOR TO INSTALL 2" STONE REPLACEMENT UNDER CULVERT BEDDING AND WINGWALL LEVELLING PADS. STONE REPLACEMENT SHALL EXTEND 2' BEYOND CULVERT AND WINGWALLS FOOTPRINT ON ALL 4 SIDES. #57 STONE SHALL BE ENCAPSULATED IN TYPE 4 FILTER FABRIC. THE FABRIC SHALL BE PLACED PERPENDICULAR TO THE BARRELS, WITH A MINIMUM OF 2" OF OVERLAP BETWEEN SHEETS.



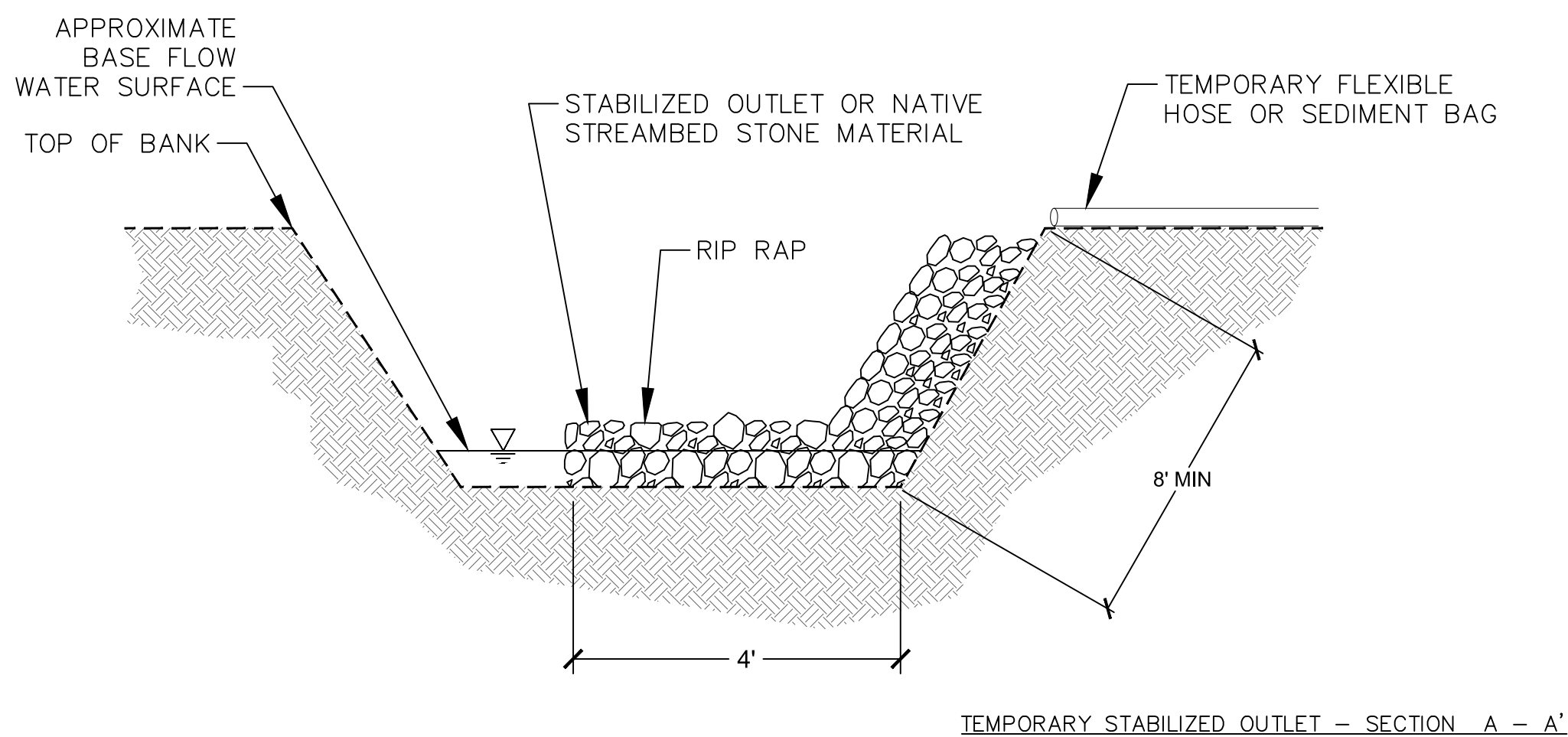
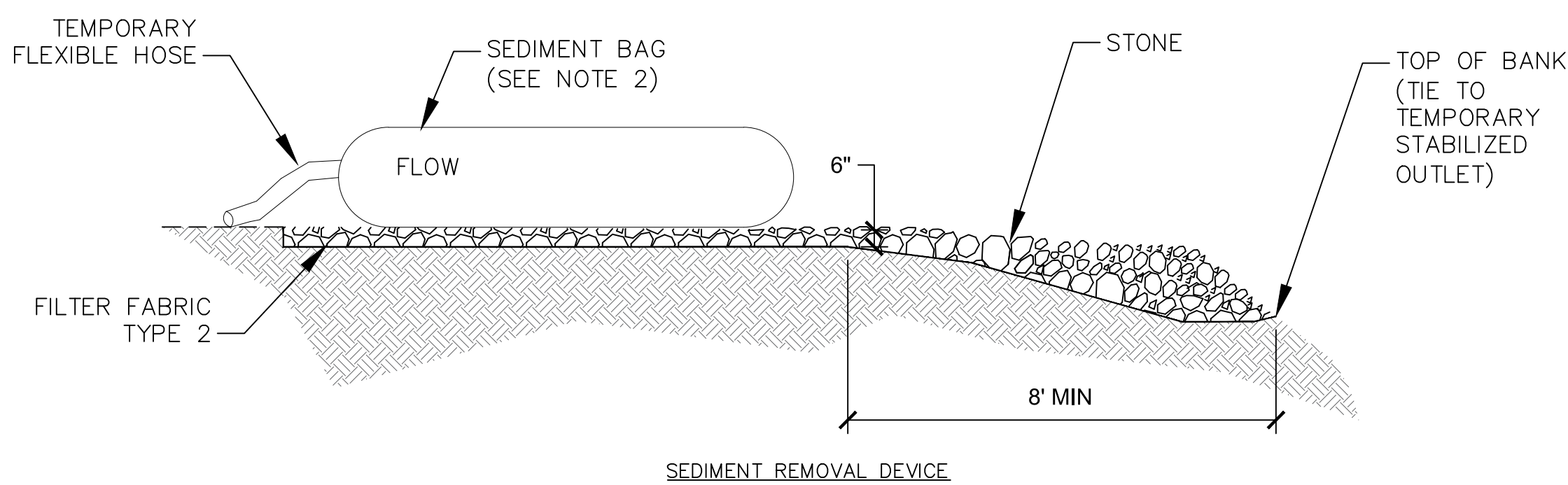
NOTES:

- SEDIMENT FILTER BAG FABRIC SHALL BE GEOTEXTILE MANUFACTURED FROM WOVEN POLYPROPYLENE OR POLYMER MATERIAL. SEDIMENT FILTER BAG FABRIC MAY BE MADE FROM RECYCLED POLYMER MATERIALS. POLYMER MATERIALS SHALL NOT CONTAIN BIODEGRADABLE FILLER MATERIALS AND SHALL CONFORM TO THE REQUIREMENTS IN ASTM DESIGNATION: E 204
- SEDIMENT FILTER BAG FABRIC SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

SPECIFICATION	REQUIREMENTS
GRAB TENSILE STRENGTH (ONE INCH GRIP), POUNDS, MINIMUM IN EACH DIRECTION ASTM DESIGNATION: D 4632 OR APPROPRIATE TEST METHOD FOR SPECIFIC POLYMER	255
ELONGATION, PERCENT, MINIMUM IN EACH DIRECTION ASTM DESIGNATION: D 4632 OR APPROPRIATE TEST METHOD FOR SPECIFIC POLYMER	15
PERMITTIVITY, 1/SEC., MINIMUM ASTM DESIGNATION: D 4491	1.5
FLOW RATE, GALLONS PER MINUTE PER SQUARE FOOT MINIMUM ASTM DESIGNATION: D 4491	200
ULTRAVIOLET STABILITY, PERCENT TENSILE STRENGTH RETAINED AFTER 500 HOURS, MINIMUM ASTM DESIGNATION: D 4355 (XENON-ARC LAMP AND WATER SPRAY WEATHERING METHOD)	80

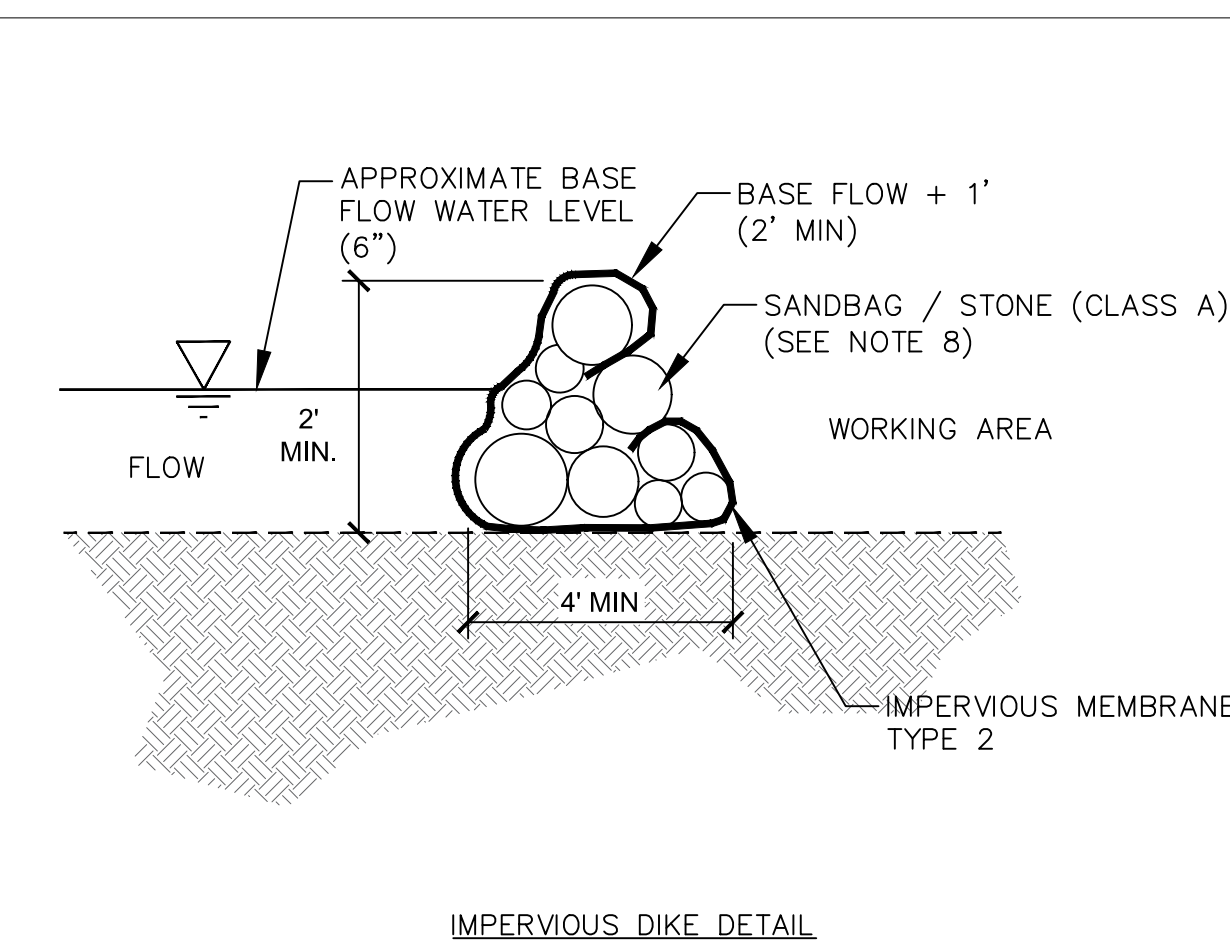
NOTES:

- THE SEDIMENT FILTER BAG SHALL BE 10'X12'X1.5' (MIN) AND SHALL BE COMPLETE WITH LIFTING LOOPS AND DUMP STRAPS ATTACHED AT THE BOTTOM TO FACILITATE EMPTYING OF SEDIMENT FILTER BAG.
- LIFTING STRAPS, SHOULD BE PLACED UNDER THE DEWATERING SEDIMENT FILTER BAG TO FACILITATE REMOVAL, AFTER USE.
- PLACE THE DEWATERING SEDIMENT FILTER BAG ON A LEVEL STABILIZED AREA OVER DENSE VEGETATION/STRAW, OR GRAVEL (IF INCREASED DRAINAGE SURFACE AREA IS NEEDED)
- INSERT DISCHARGE HOSE FROM PUMP INTO THE DEWATERING SEDIMENT FILTER BAG A MINIMUM OF SIX INCHES (6") AND TIGHTLY SECURE WITH ATTACHED STRAP TO PREVENT WATER FROM FLOWING OUT OF THE UNIT WITHOUT BEING FILTERED.
- REPLACE THE UNIT WHEN ONE HALF (1/2) FULL OF SEDIMENT OR WHEN SEDIMENT HAS REDUCED THE FLOW RATE OF THE PUMP DISCHARGE TO AN IMPRACTICAL RATE.
- REMOVE THE UNIT AND SEDIMENT FROM ENVIRONMENTALLY SENSITIVE AREA AND WATERWAYS AT THE APPROVED DISPOSAL SITE OPEN OR SLIT THE UNIT, REMOVE SEDIMENT AND GRADE SMOOTHLY INTO EXISTING TOPOGRAPHY. DISPOSE OF THE DEWATERING SEDIMENT FILTER BAG, AT AN APPROPRIATE RECYCLING OR SOLID WASTE FACILITY.



DEWATERING SEDIMENT FILTER BAG

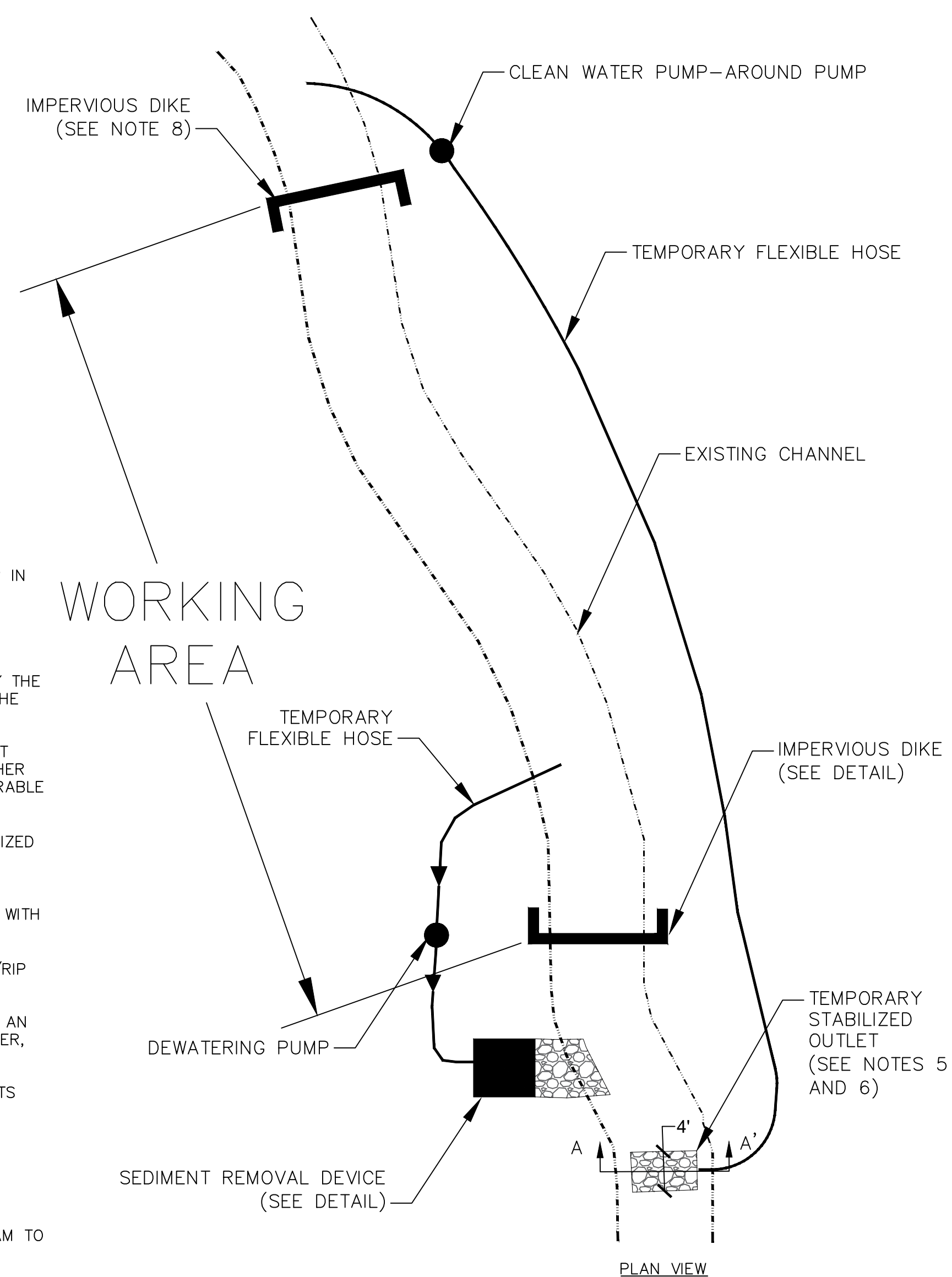
NTS



IMPERVIOUS DIKE DETAIL

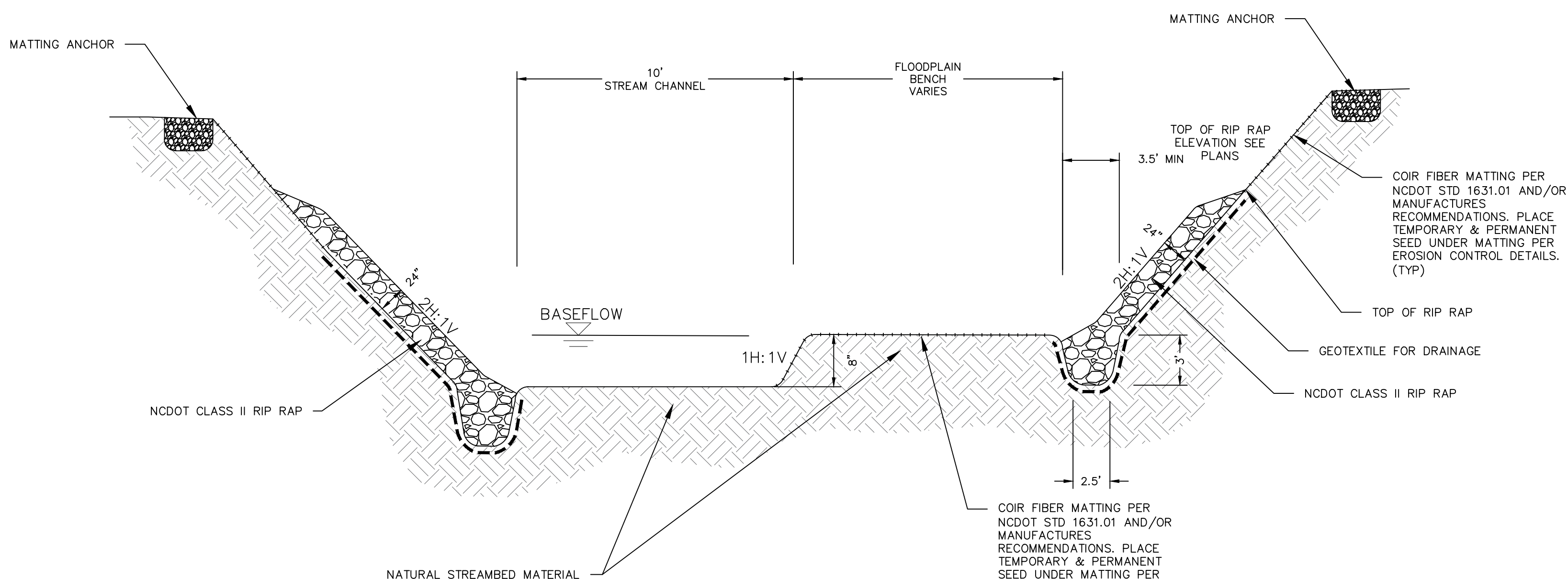
NOTES:

- ALL CHANNEL WORK INVOLVING EXCAVATION SHALL BE PERFORMED IN DRY CONDITIONS OR IN CHANNEL SECTIONS ISOLATED BY IMPERVIOUS DIKES AND KEPT DE-WATERED.
- THE CONTRACTOR SHALL NOT DISTURB MORE AREA THAN CAN BE STABILIZED THE SAME WORKING DAY.
- PUMP-AROUND PUMP AND HOSE SHALL ADEQUATELY CONVEY BASEFLOW AS SPECIFIED BY THE DESIGNER. DE-WATERING PUMP SHALL ADEQUATELY DE-WATER THE WORKING AREA AT THE DOWNSTREAM IMPERVIOUS DIKE.
- GRAVITY-BASED GEOTEXTILE BAG FILTERS SHALL BE USED TO COLLECT SILT AND SEDIMENT FROM WORK AREA DEWATERING. THE DESIGNER MAY SPECIFY A SEDIMENT BASIN OR OTHER SEDIMENT CONTROL MEASURE IN LIEU OF A SEDIMENT BAG IF SITE CONDITIONS ARE FAVORABLE (I.E. - TREES WILL NOT BE IMPACTED FOR BASIN EXCAVATION, ETC.).
- EFFLUENT FROM CLEAN WATER PUMP AROUND MAY BE DISCHARGED DIRECTLY INTO STABILIZED OUTLET (NO SEDIMENT REMOVAL DEVICE REQUIRED).
- A STABILIZED OUTLET SHALL BE USED TO CONTROL THE EFFLUENT FROM ALL PUMPING OPERATIONS. THE DESIGNER SHALL SPECIFY ALL MATERIALS AND DIMENSIONS ASSOCIATED WITH STABILIZED OUTLETS.
- FILTER FABRIC AS SPECIFIED BY THE DESIGNER SHALL BE USED UNDERNEATH ALL STONE/RIP RAP PLACED FOR SEDIMENT BAGS, STABILIZED OUTLETS, SPLASH PADS.
- IMPERVIOUS DIKES SHALL BE CONSTRUCTED TO ISOLATE THE IN-STREAM WORKING AREA. AN IMPERVIOUS FABRIC MEMBRANE AND SAND BAGS OR STONE, AS SPECIFIED BY THE DESIGNER, SHALL BE USED TO CREATE THE DIKES.
- STREAM AREAS IMPACTED DUE TO SITE DEWATERING ACTIVITIES SHALL BE REGRADED TO ITS PRECONSTRUCTION CONTOURS AND REVEGETATED WITH APPROPRIATE NATIVE SPECIES.
- THE WORK SEQUENCE IN PUMP-AROUND OPERATIONS PROCEEDS TYPICALLY AS FOLLOWS:
 - INSTALL SEDIMENT REMOVAL DEVICE AND TEMPORARY STABILIZED OUTLETS AT THE DOWNSTREAM END OF WORKING AREA.
 - INSTALL PUMP-AROUND PUMP AND FLEXIBLE HOSE.
 - INSTALL UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING (CLEAN WATER) DOWNSTREAM TO STABILIZED OUTLET.
 - INSTALL DOWNSTREAM IMPERVIOUS DIKE AND DE-WATERING PUMP.
 - PERFORM CHANNEL WORK IN ACCORDANCE WITH THE PLANS IN THE WORKING AREA.
 - DE-WATER THE WORKING AREA (AS NEEDED) INTO THE SEDIMENT REMOVAL DEVICE AND TEMPORARY STABILIZED OUTLET.
 - UPON COMPLETION OF WORK, REMOVE ANY SEDIMENT ACCUMULATION BEHIND IMPERVIOUS DIKES.
 - REMOVE DOWNSTREAM AND THEN UPSTREAM DIKES AND ALL PUMPS AND HOSE.
 - SEED AND MULCH ALL DISTURBED AREAS PER THE PLANTING PLAN.



PUMP AROUND DETAIL

NTS



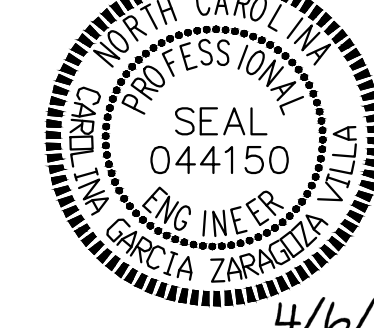
TYPICAL SECTION UPSTREAM/DOWNSTREAM

NOT TO SCALE



PREPARED BY
ENGINEERING DEPARTMENT
CITY OF CONCORD
P.O. BOX 308
CONCORD N.C. 28026
(704) 920-5425

Carolina Georgia Taragoza



4/6/2021
Engineer's Seal

Surveyor's Seal

DUVAL ST CULVERT REPLACEMENT STANDARD STREAM DETAILS
PROJECT # : 2014-009

BY	BCC	BCC	DESCRIPTION	
			FINAL FOR CONSTRUCTION	
			REVISED PER NCDOT COMMENTS	
DATE	DESCRIPTION	BY	BCC	
03/24/21				
04/06/21				
REV. #	DATE	DESCRIPTION	BY	BCC
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1				

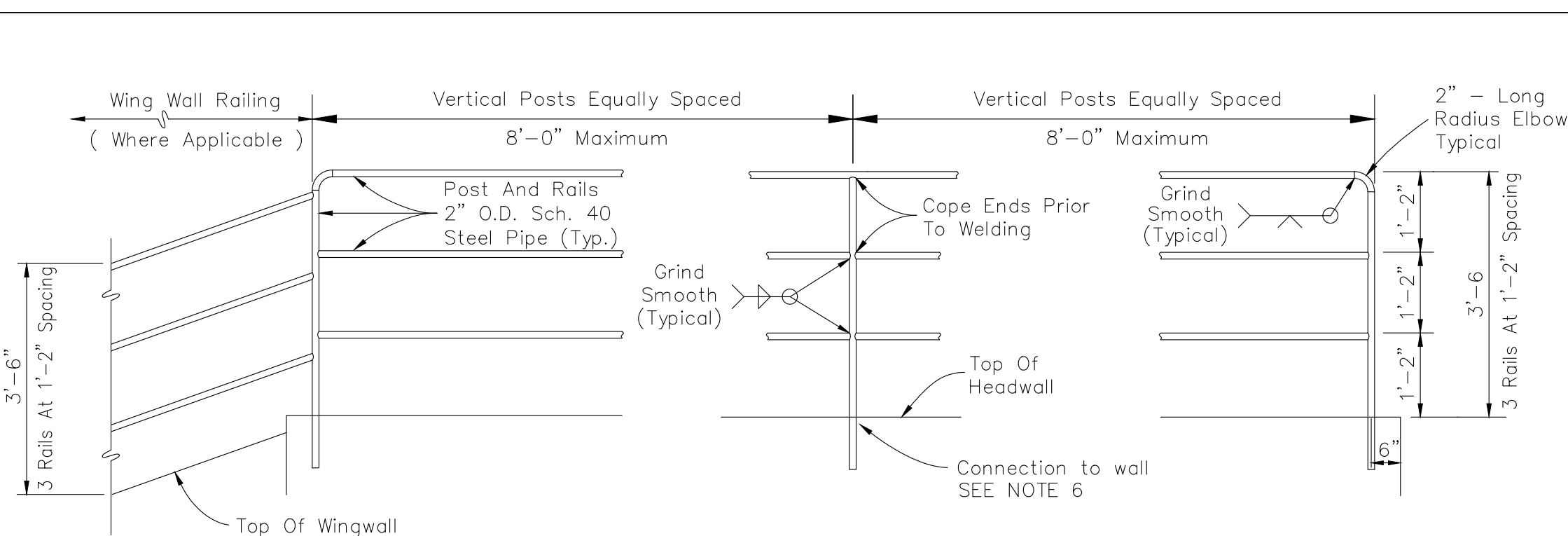
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DRAWN BY: BCC
CHECKED BY: CGZ
SCALE: AS SHOWN
DATE: 02/18/21
PROJECT NUMBER: 2014-009
SHEET: 12 OF: 16

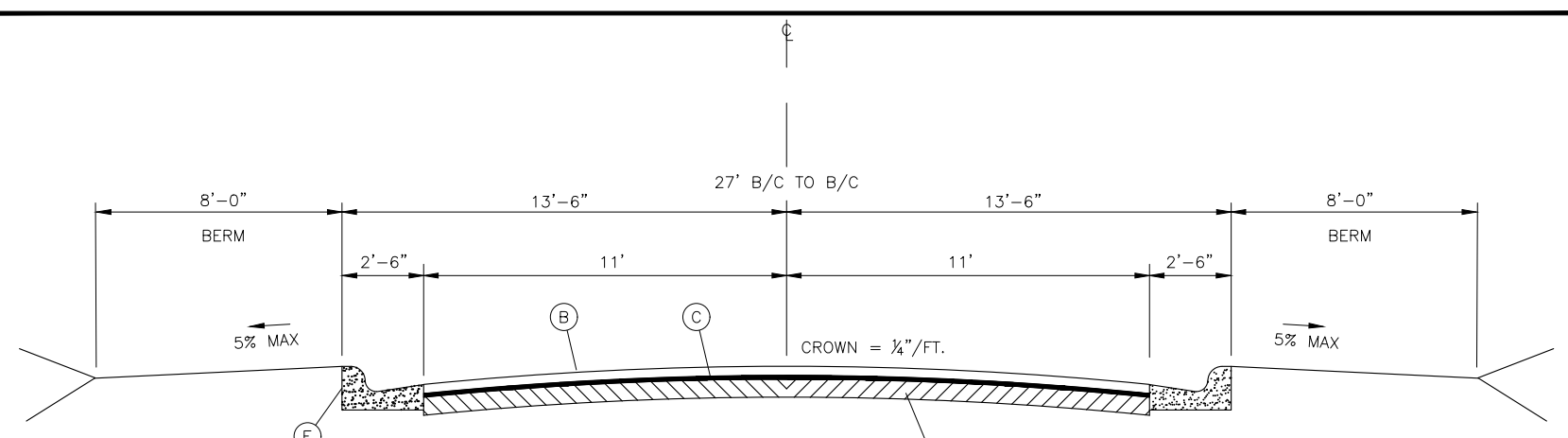
NOTES:

- CONSTRUCT PROPOSED STEEL PIPE RAIL OF 2" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.
- REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.
- WHEN PAINTING IS REQUIRED IN THE PLANS, SMOOTH, CLEAN AND PREPARE GALVANIZED SURFACES IN ACCORDANCE WITH SECTION 1080 AND THE ASTM D6386 STANDARD.
- WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD.
- VERTICAL POSTS TO BE EVENLY SPACED.
- CONTRACTOR SHALL HAVE SAFETY RAIL CONNECTIONS DESIGNED, DETAILED AND SPECIFIED BY THE HEADWALLS/WINGWALLS MANUFACTURER OR MANUFACTURER'S REPRESENTATIVE LICENSED IN THE STATE OF NORTH CAROLINA. DESIGN MUST MEET LOADING REQUIREMENTS IN OSHA STANDARD 1910.29(B)(3) AND 1910.29(B)(5). CONTRACTOR SHALL SUBMIT FINAL DESIGN AND CALCULATIONS TO THE CITY OF CONCORD FOR APPROVAL.

PEDESTRIAN SAFETY RAIL

ELEVATION

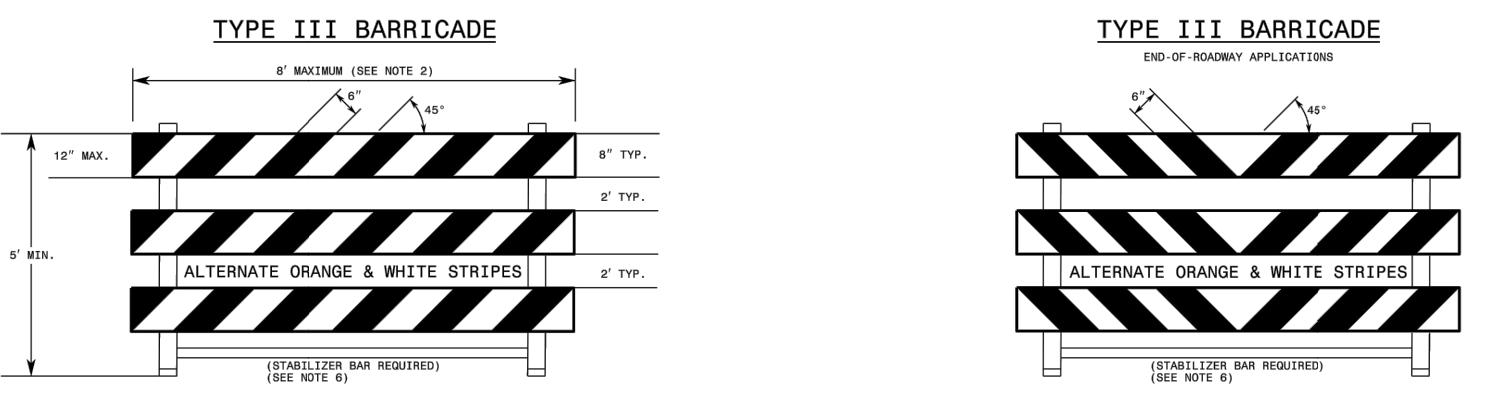




- KEY**
- Ⓐ 2.5" 5F 9.5B SURFACE COURSE
 - Ⓑ 2.25" 1-19.0C INTERMEDIATE COURSE
 - Ⓒ 8" COMPACTED AGGREGATE BASE COURSE OR 4" 8-25.0C
 - Ⓓ 2'-6" STANDARD CURB AND GUTTER

NOT TO SCALE

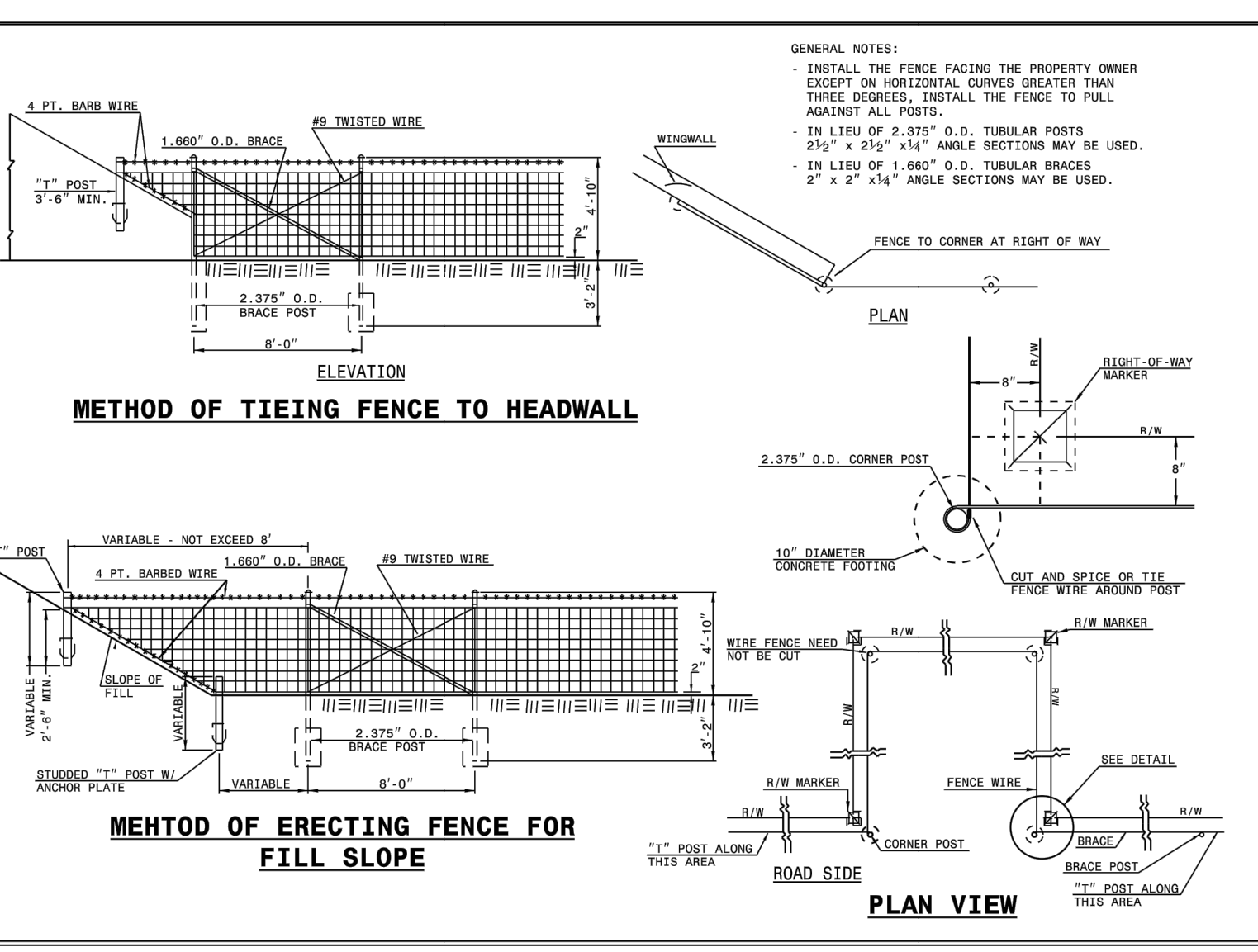
TYPICAL SECTION DUVAL ST NW



- GENERAL NOTES**
1. HORIZONTAL RAILS FOR MAY BE CONSTRUCTED OF APPROVED COMPOSITE, HOLLOW/CORRUGATED EXTRUDED RIGID POLYETHYLENE, HIGH DENSITY POLYETHYLENE, OR OTHER NCDOT APPROVED MATERIAL.
 2. BARRICADE SHALL BE LIMITED TO A MAXIMUM LENGTH OF 8 FT UNLESS NCHRP 350 CRASH TESTED FOR CATEGORY II DEVICES AND NCDOT APPROVED.
 3. ONLY NCDOT APPROVED COMPOSITE AND ROLL-UP SIGNS MAY BE MOUNTED ON THE BARRICADE RAILS. MOUNT SIGNS TO BARRICADE RAILS TO ENSURE SIGN WILL NOT BECOME DETACHED UNDER NORMAL WIND AND TRAFFIC CONDITIONS.
 4. SIGNS SHALL BE MOUNTED A MINIMUM OF 1 FOOT FROM THE GROUND TO THE BOTTOM OF THE SIGN UNLESS SIGNS R11-3 OR R11-4 ARE REQUIRED BY THE PLANS OR DIRECTED BY THE ENGINEER.
 5. BARRICADE MUST BE NCHRP 350 FOR CATEGORY II DEVICES AND NCDOT APPROVED WITH STABILIZER BAR OR ADEQUATE LATERAL BRACING.
 6. ASSEMBLY OF THE GENERIC BARRICADES MUST BE SELF CERTIFIED BY THE ASSEMBLER.
 7. BARRICADES USED TO CLOSE A ROADWAY SHALL EXTEND ACROSS THE ENTIRE ROADWAY. WHERE LOCAL TRAFFIC MUST BE MAINTAINED, THEY MAY BE PLACED IN A STAGGERED PATTERN.
 8. STRIPES ON WORK ZONE BARRICADE RAILS SHALL BE ALTERNATE ORANGE AND WHITE RETROREFLECTIVE STRIPES, SLOPED DOWNWARD TOWARDS THE SIDE WHICH TRAFFIC IS TO PASS OR TURN IN DETOURING. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.
 9. USE RED AND WHITE STRIPES FOR PERMANENT BARRICADES.
 10. ALL BARRICADES MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.
 11. PLACE MANUFACTURER'S NAME AND FEDERAL HIGHWAY ADMINISTRATION'S NCHRP 350 APPROVAL LETTER NUMBER ON BARRICADE FRAME.
 12. PLACE SANDBAGS OR OTHER APPROVED BALLASTING METHODS ON THE FEET OF THE FRAME. DO NOT PLACE SANDBAGS ON TOP OF A STRIPED RAIL OR STABILIZER BAR. DO NOT BALLAST BARRICADES WITH HEAVY OBJECTS SUCH AS ROCKS, CHUNKS OF CONCRETE OR OTHER ITEMS THAT WOULD CAUSE DAMAGE IF THE BARRICADE IS STRUCK BY A VEHICLE.

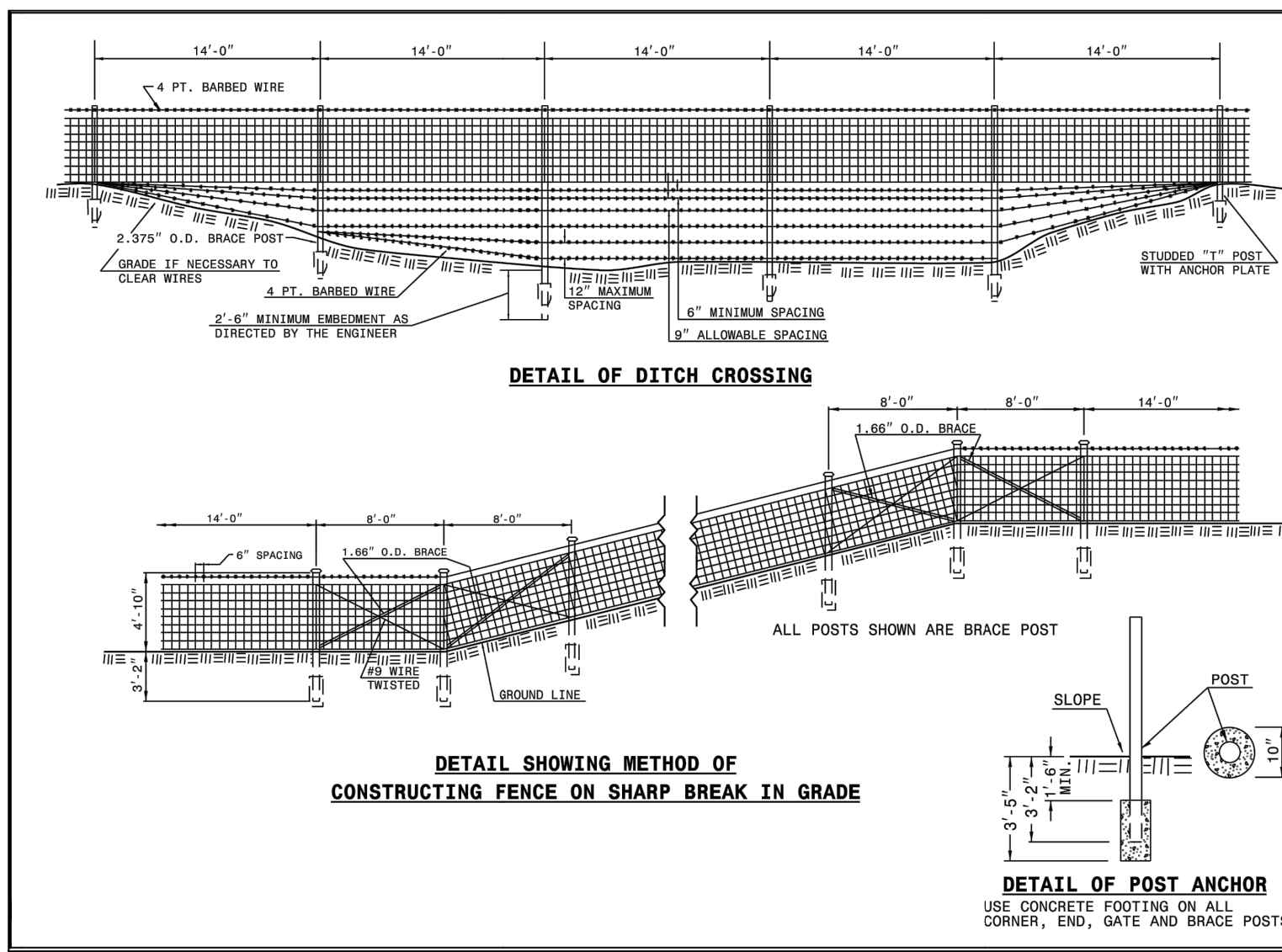
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ROADWAY STANDARD DRAWING FOR BARRICADES TYPE-III STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.



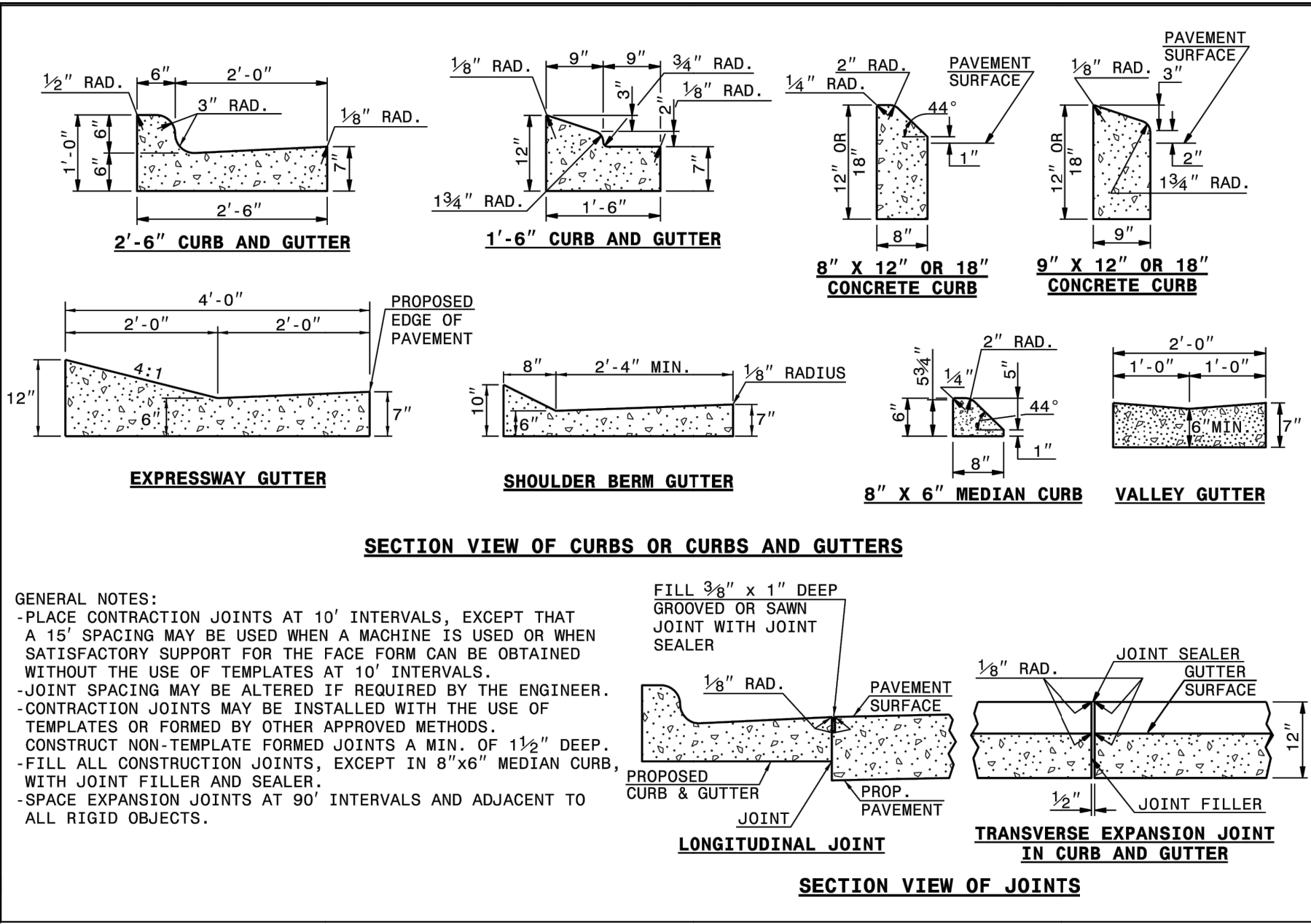
ROADWAY STANDARD DRAWING FOR WOVEN WIRE FENCE WITH STEEL POST STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

866.03



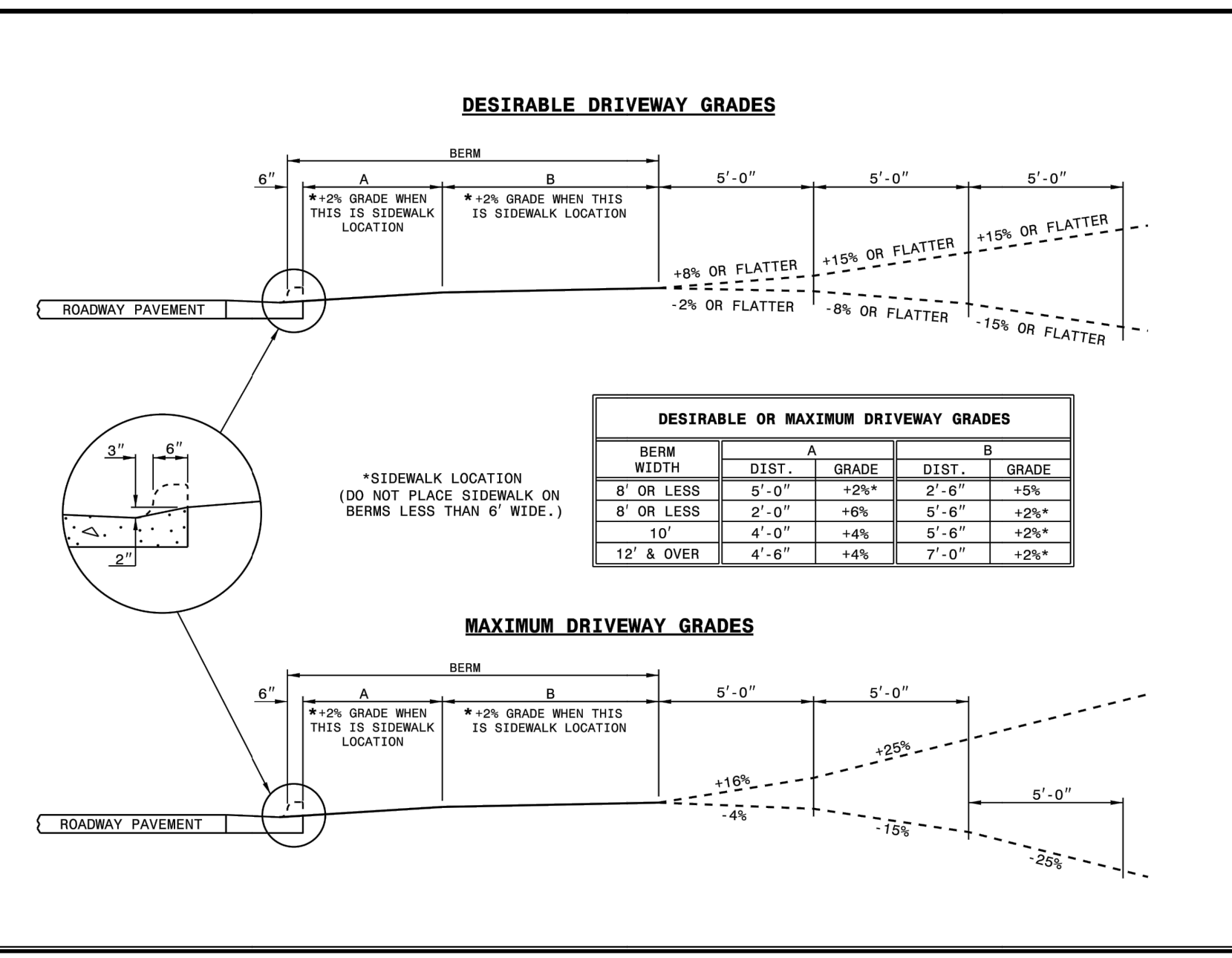
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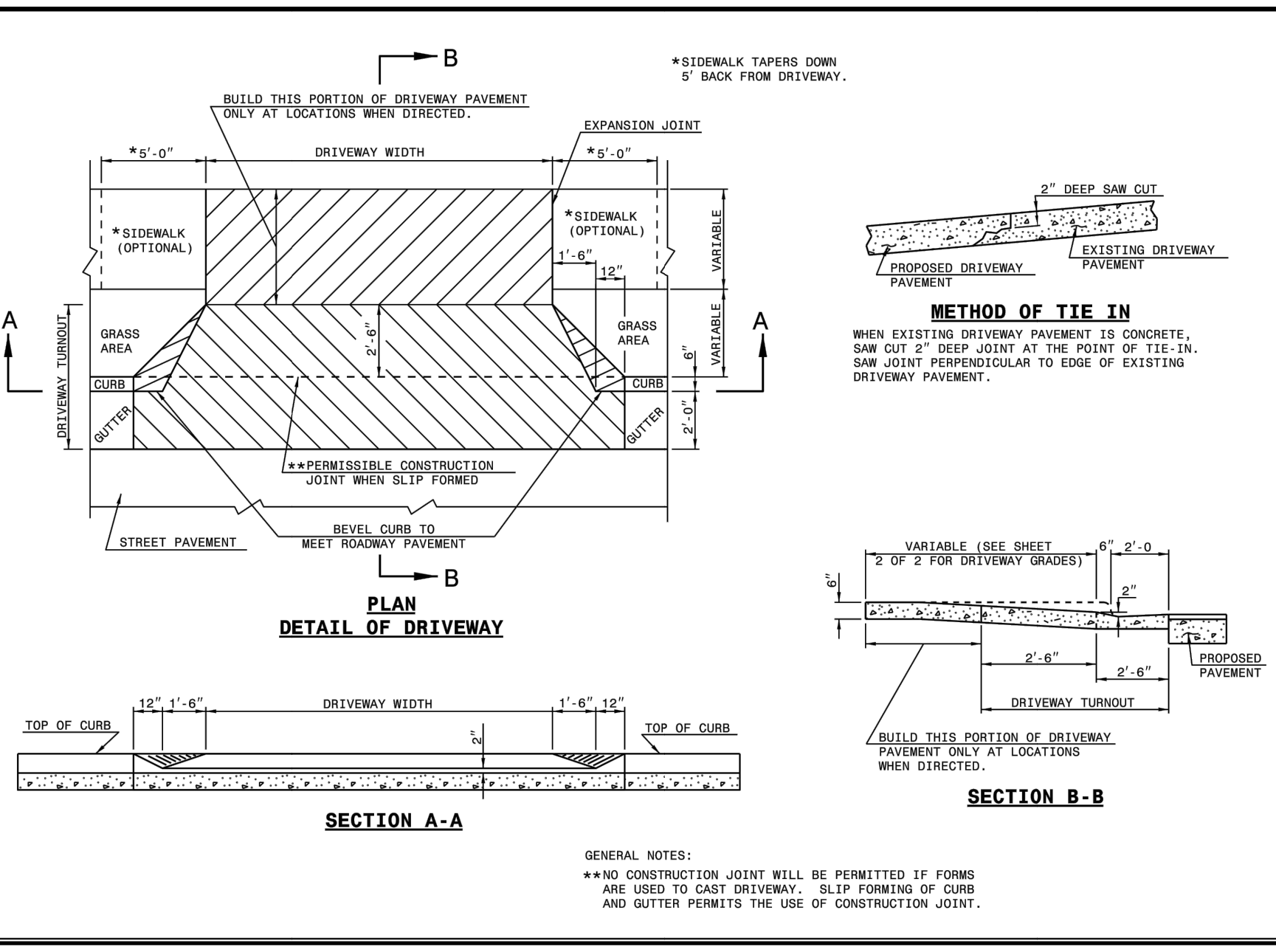
ROADWAY STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

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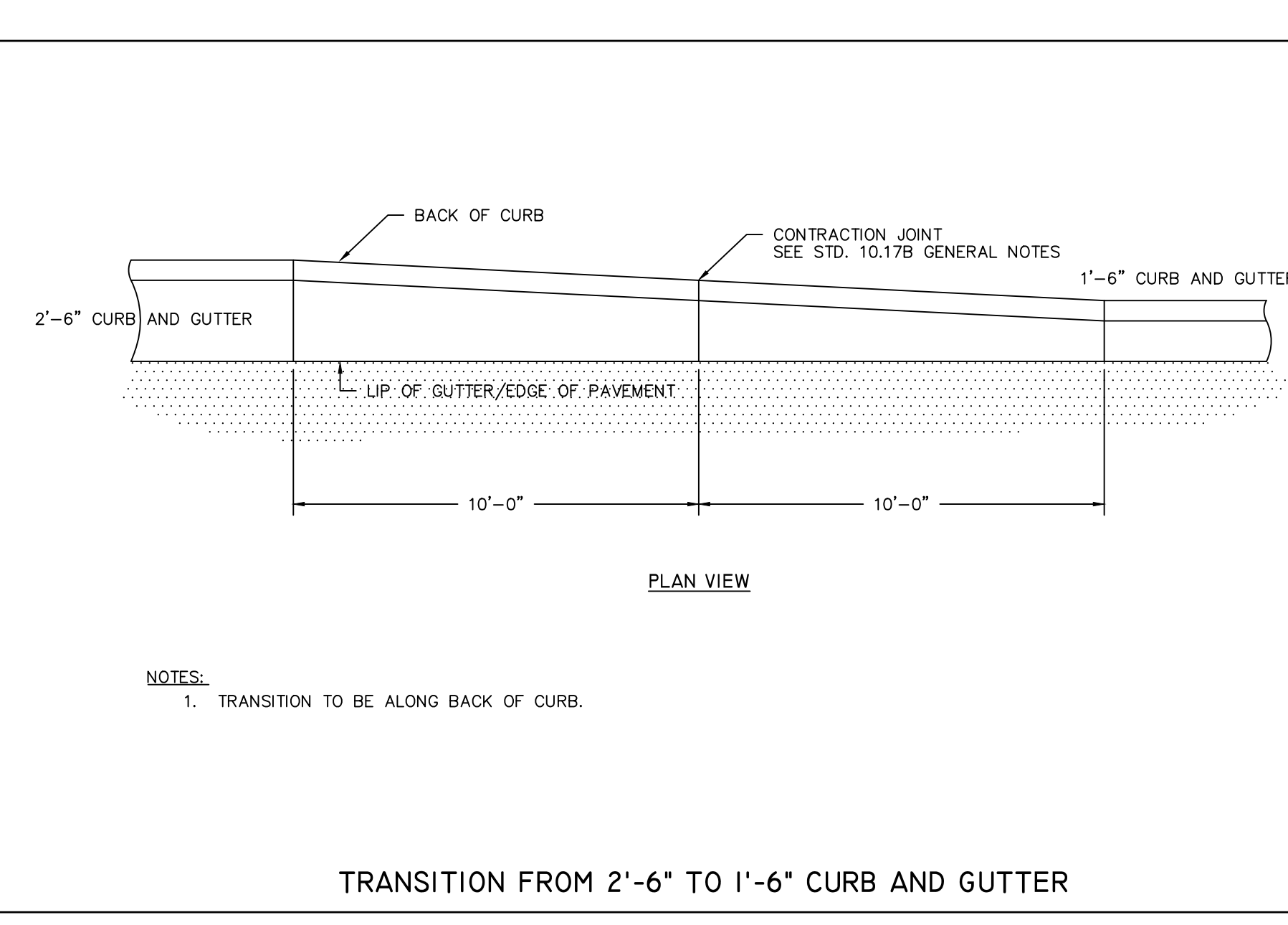
ROADWAY STANDARD DRAWING FOR DRIVEWAY TURNOUT DRIVEWAY GRADES STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

848.03



ROADWAY STANDARD DRAWING FOR DRIVEWAY TURNOUT DROP CURB TYPE STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

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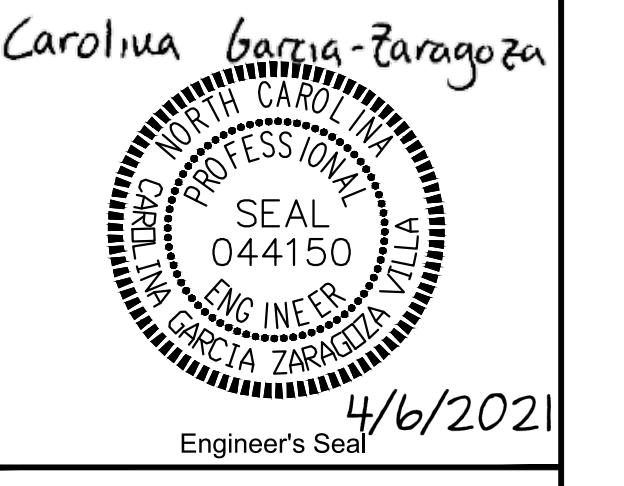


REV. #	DATE	DESCRIPTION
0	03/24/21	FINAL FOR CONSTRUCTION
1	04/06/21	REVISED PER NCDOT COMMENTS

DESIGNED BY: CGZ
 DRAWN BY: BCC
 CHECKED BY: CGZ
 SCALE: AS SHOWN
 DATE: 02/18/21
 PROJECT NUMBER: 2014-009
 SHEET: 13 OF: 16



PREPARED BY
 ENGINEERING DEPARTMENT
 CITY OF CONCORD
 P.O. BOX 308
 CONCORD N.C. 28026
 (704) 920-5425



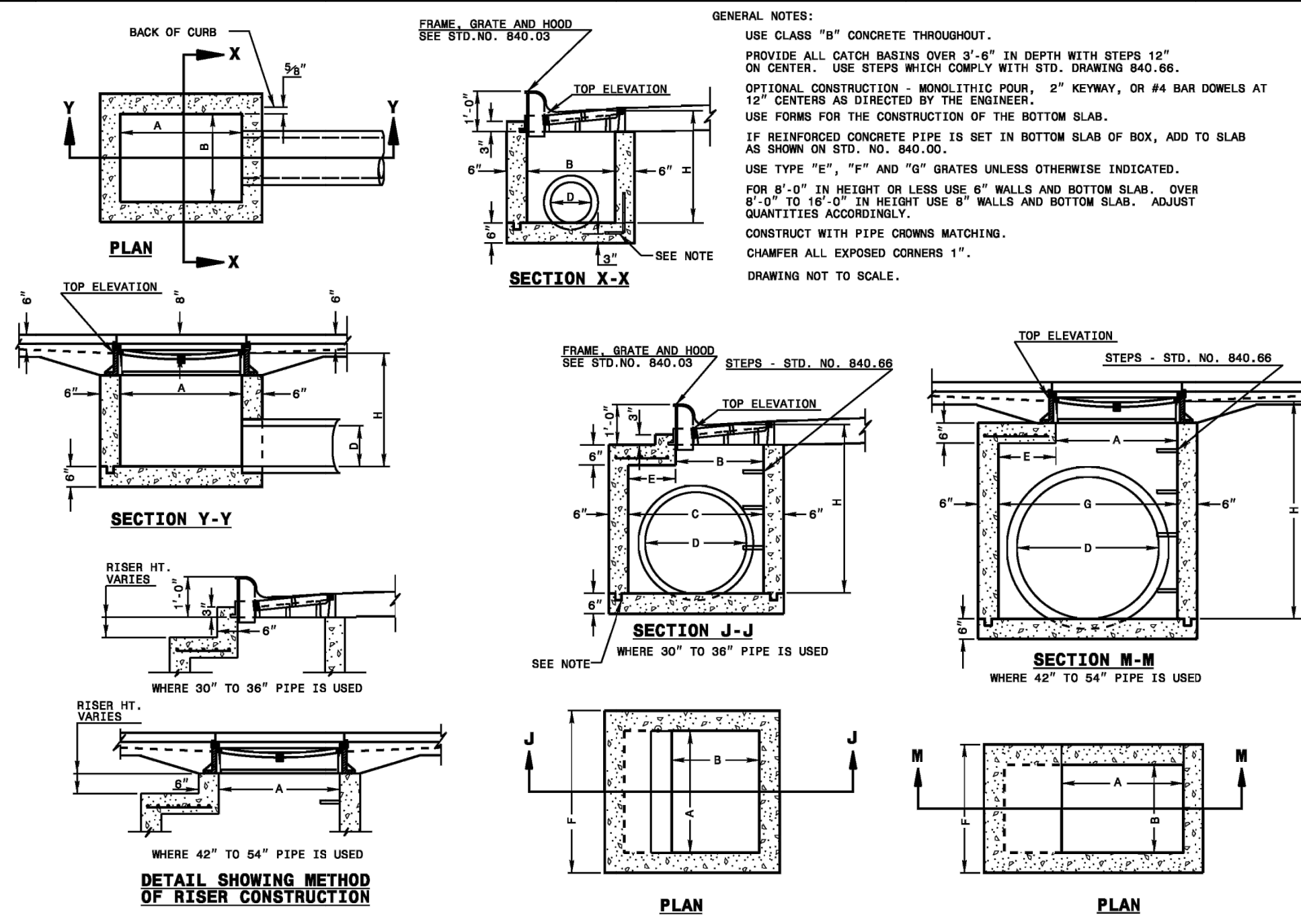
Surveyor's Seal

DUVAL ST CULVERT REPLACEMENT STANDARD STREET DETAILS PROJECT # : 2014-009

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

ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

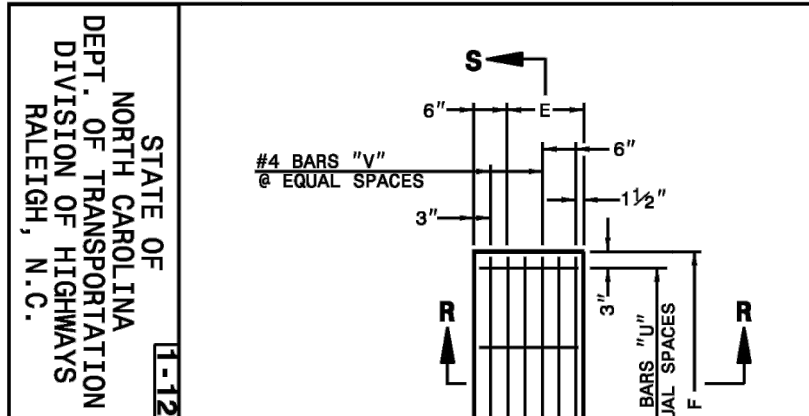
SHEET 1 OF 2
840.02



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

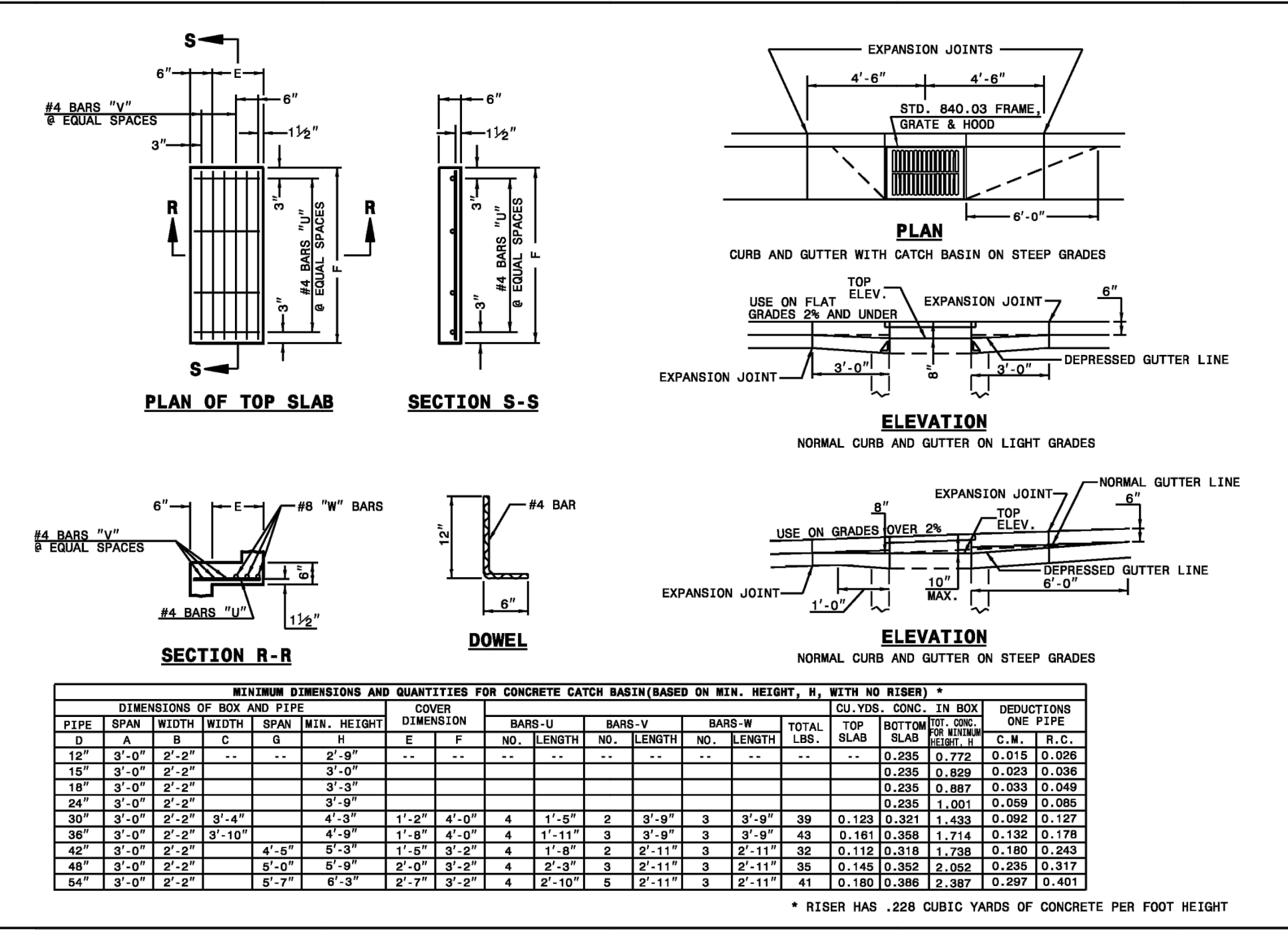
ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

SHEET 1 OF 2
840.02



ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

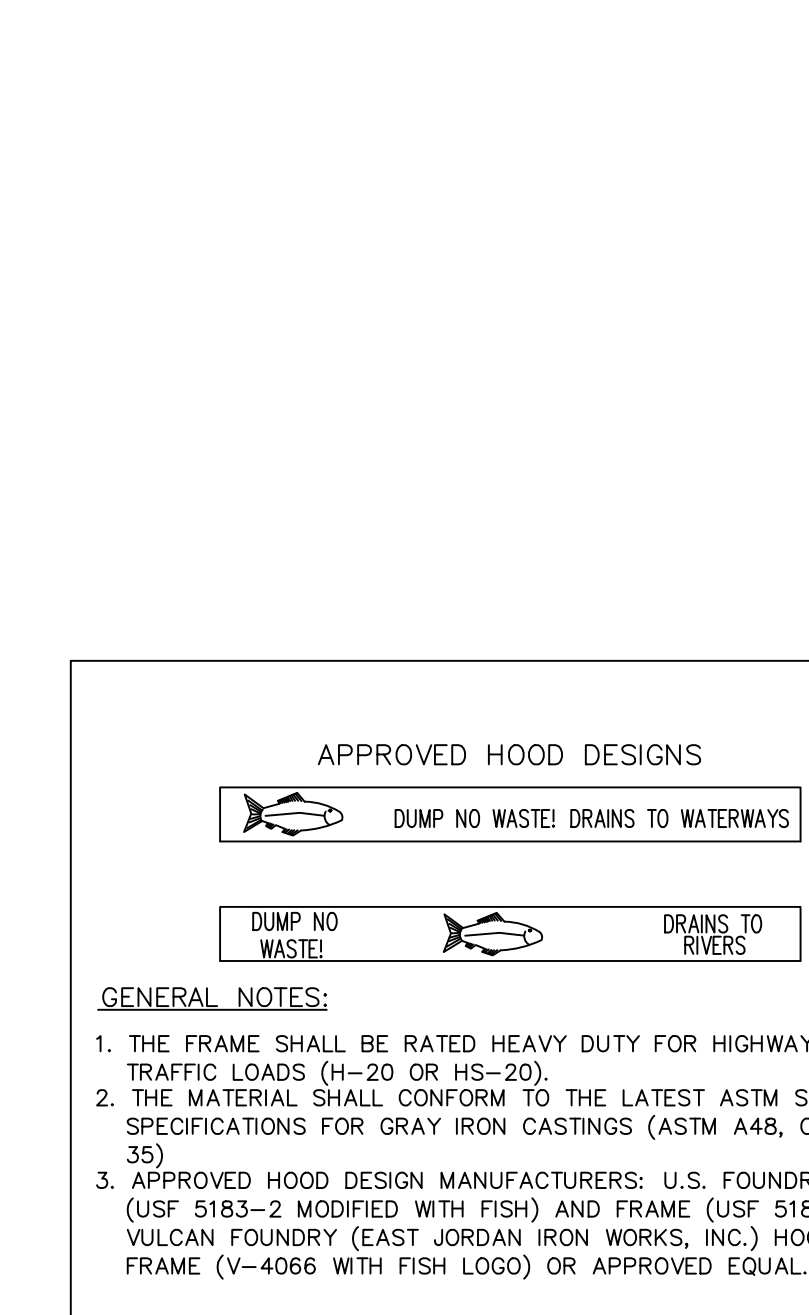
SHEET 2 OF 2
840.02



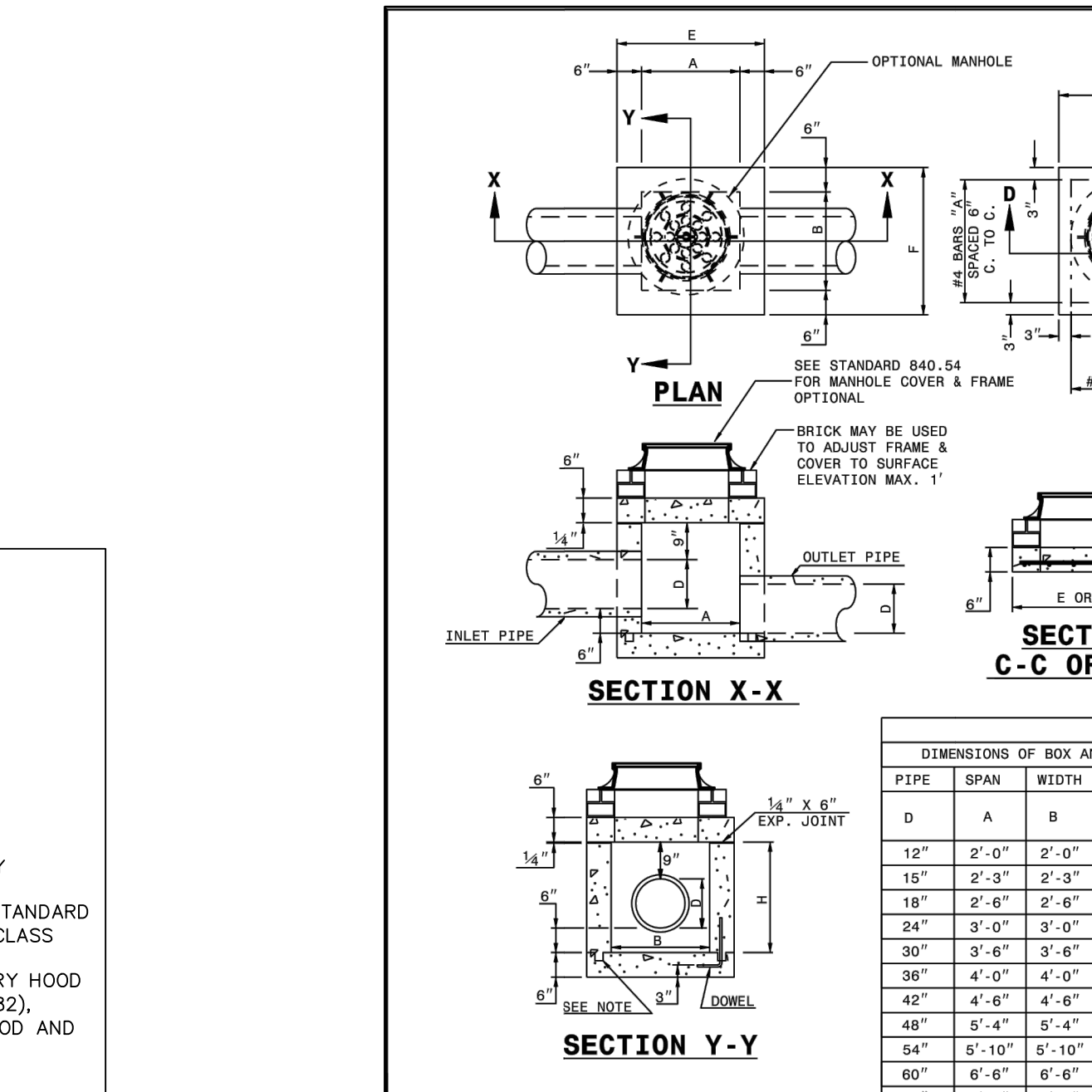
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

SHEET 2 OF 2
840.02



GENERAL NOTES:
1. THE FRAME SHALL BE RATED HEAVY DUTY FOR HIGHWAY TRAFFIC LOADS (H-20 OR HS-20).
2. THE MATERIAL SHALL CONFORM TO THE LATEST ASTM STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS (ASTM A48, CLASS 35).
3. APPROVED HOOD DESIGN MANUFACTURERS: U.S. FOUNDRY HOOD (USF 5183-2 MODIFIED WITH FISH) AND FRAME (USF 5182), VULCAN FOUNDRY (EAST JORDAN IRON WORKS, INC.) HOOD AND FRAME (V-4066 WITH FISH LOGO) OR APPROVED EQUAL.



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

ENGLISH STANDARD DRAWING FOR
CONCRETE JUNCTION BOX
(WITH OPTIONAL MANHOLE)
12" THRU 66" PIPE

SHEET 1 OF 1
840.31

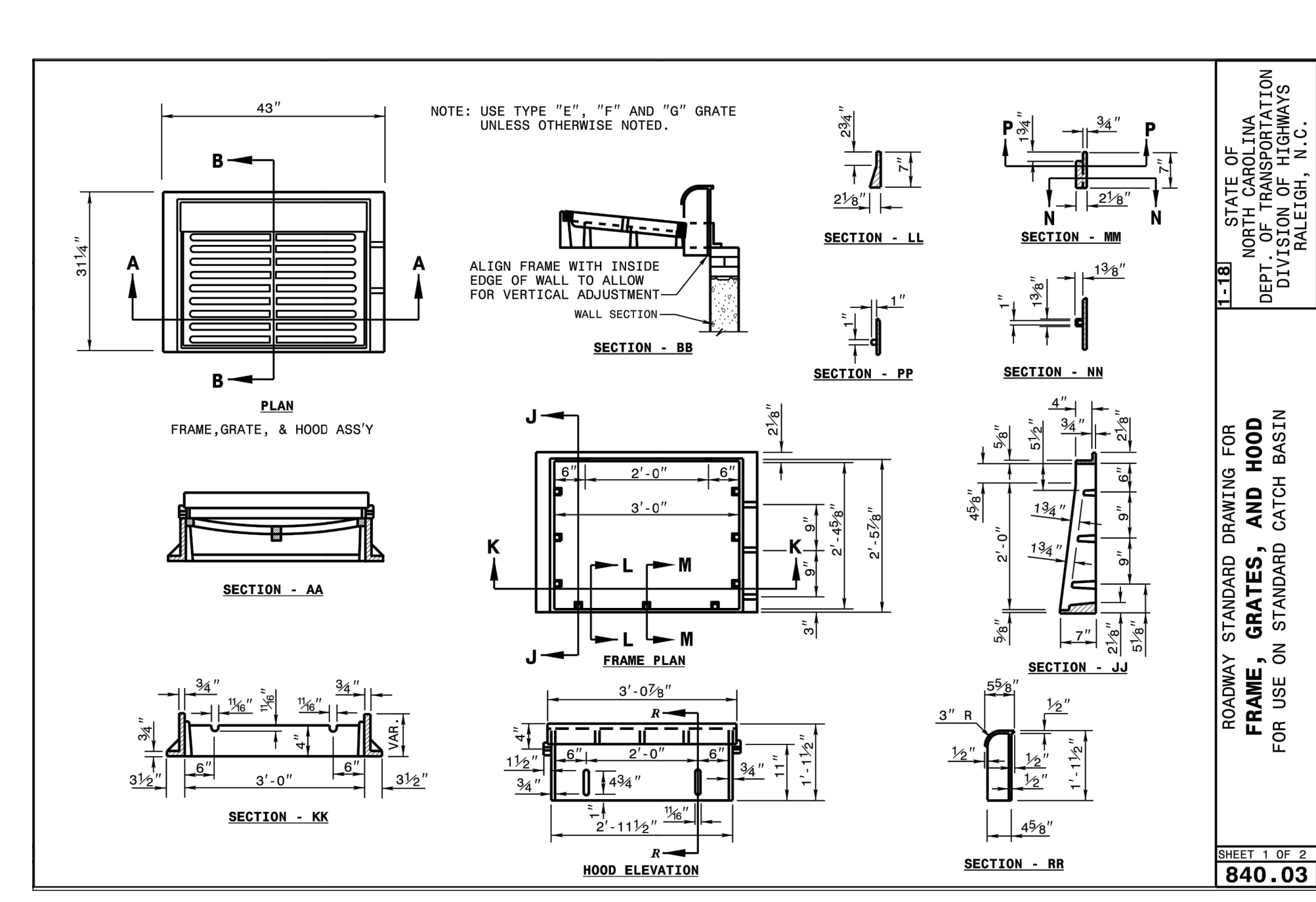
GENERAL NOTES:
CHAMFER ALL EXPOSED CORNERS 1".
USE CLASS "B" CONCRETE THROUGHOUT.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.
PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.
ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. STAIRCASE BARS SHORTENED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB).
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

PIPE DIMENSION	DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES			CUBIC YARDS		DEDUCTIONS		
	SPAN	WIDTH	HEIGHT	TOP SLAB	BOX AND SLAB	ONE PIPE	R.C.	
12"	2'-0"	2'-0"	2'-3"	0.167	0.167	0.185	22	0.750
15"	2'-3"	2'-3"	2'-6"	0.196	0.196	0.204	24	0.902
18"	2'-6"	2'-6"	2'-9"	0.227	0.227	0.232	30	1.065
24"	3'-0"	3'-0"	3'-3"	0.296	0.296	0.299	40	1.434
30"	3'-6"	3'-6"	3'-9"	0.375	0.375	0.396	51	1.860
36"	4'-0"	4'-0"	4'-3"	0.463	0.463	0.333	64	2.341
42"	4'-6"	4'-6"	4'-9"	0.560	0.560	0.370	77	2.878
48"	5'-4"	5'-4"	5'-3"	0.743	0.743	0.407	111	3.623
54"	5'-10"	5'-10"	5'-9"	0.865	0.865	0.444	136	4.283
60"	6'-6"	6'-6"	6'-3"	1.042	1.042	0.481	145	5.090
66"	7'-1"	7'-1"	6'-9"	1.210	1.210	0.518	169	5.917

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

ENGLISH STANDARD DRAWING FOR
CONCRETE JUNCTION BOX
(WITH OPTIONAL MANHOLE)
12" THRU 66" PIPE

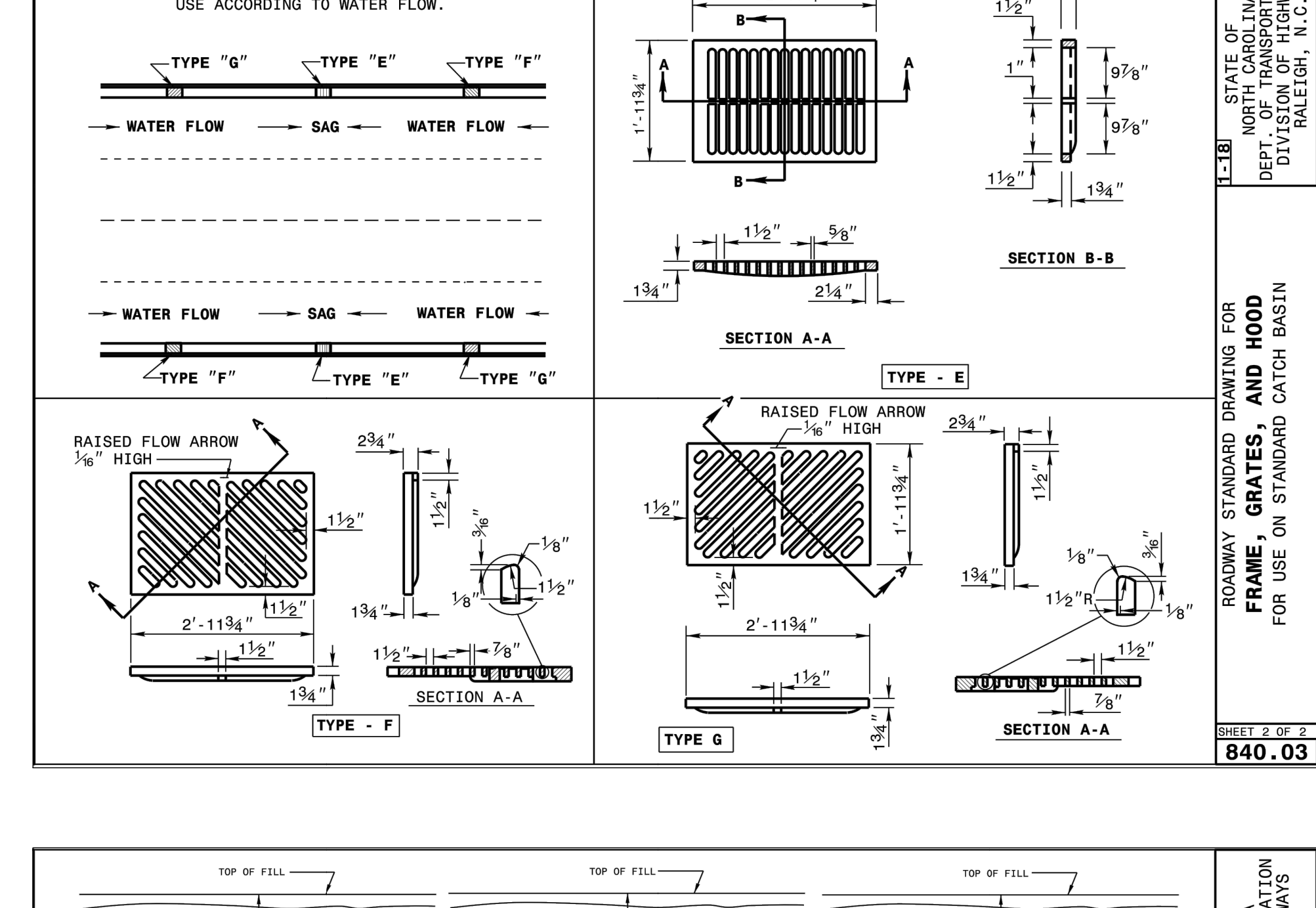
SHEET 1 OF 1
840.31



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

ROADWAY STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

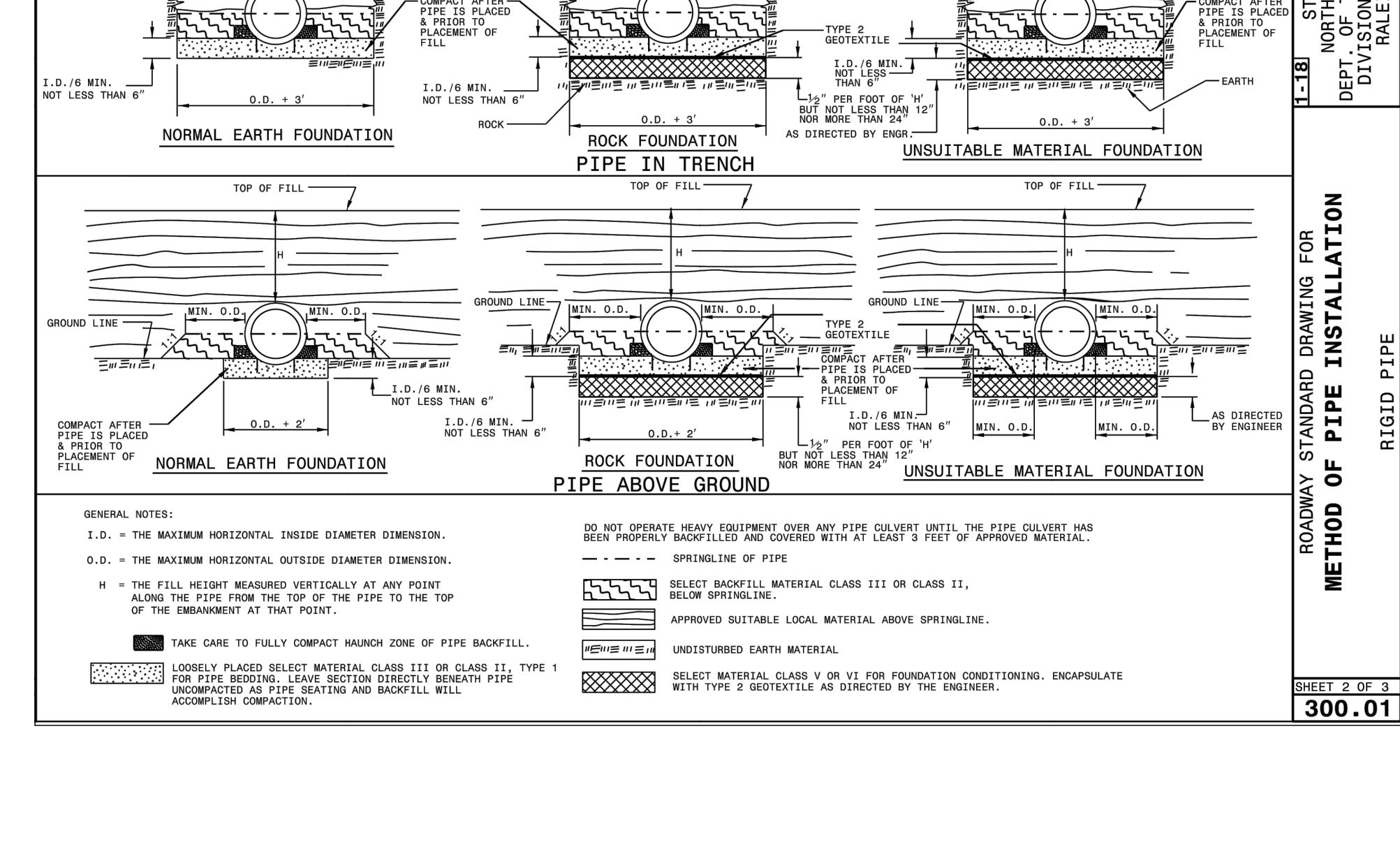
SHEET 1 OF 2
840.03



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

ROADWAY STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

SHEET 2 OF 2
840.03



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

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 2
300.01

Concord
NORTH CAROLINA
High Performance Living

PREPARED BY
ENGINEERING DEPARTMENT
CITY OF CONCORD
P.O. BOX 308
CONCORD N.C. 28026
(704) 920-5425

Carolina Barria-Baragoza
NORTH CAROLINA
PROFESSIONAL
ENGINEER
No. 444150
EXPIRES 12/31/2021
4/6/2021
Engineer's Seal

SEAL

Surveyor's Seal

DUVAL ST CULVERT
REPLACEMENT
STORM SEWER DETAILS
PROJECT #: 2014-009

REV. #	DATE	DESCRIPTION	BY	BCC
0	03/24/21	FINAL, FOR CONSTRUCTION		BCC
1	04/06/21	REVISED PER NCECO COMMENTS		BCC

DESIGNED BY: CGZ
DRAWN BY: BCC
CHECKED BY: CGZ
DATE: 02/18/21
PROJECT NUMBER: 2014-009
SHEET: 14 OF 16

EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL INSTALL AND MAINTAIN THROUGHOUT THE PROJECT CONSTRUCTION ALL EROSION CONTROL MEASURES SHOWN WITHIN THESE PLANS IN ACCORDANCE WITH APPLICABLE NCDOT EROSION AND SEDIMENT CONTROL AND NCDOT REGULATIONS.
2. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL REGULATIONS, NCDOT, U.S. DEPARTMENT OF AGRICULTURE, AND U.S. SOIL CONSERVATION SERVICE REGULATIONS.
3. ALL CONSTRUCTION WORK SHALL BE IN COMPLIANCE WITH REGULATIONS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER GENERAL PERMIT.
4. THE CONTRACTOR SHALL DILIGENTLY AND CONTINUOUSLY MAINTAIN ALL EROSION CONTROL DEVICES AND STRUCTURES TO MINIMIZE EROSION. THE CONTRACTOR SHALL MAINTAIN CLOSE CONTACT WITH THE NCDOT EROSION CONTROL INSPECTOR SO THAT PERIODIC INSPECTIONS CAN BE PERFORMED AT APPROPRIATE STAGES OF CONSTRUCTION.
5. APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS. CONTACT PROJECT ENGINEER AND PROJECT EROSION CONTROL INSPECTOR TO ENSURE ADDITIONAL EROSION CONTROL MEASURES ARE INSTALLED PRIOR TO OFF-SITE GRADING.
6. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED CONTINUOUSLY, RELOCATED WHEN AND AS NECESSARY AND SHALL BE CHECKED AFTER EVERY RAINFALL. SEEDED AREAS SHALL BE CHECKED REGULARLY AND SHALL BE WATERED, FERTILIZED, RESEEDED AND MULCHED AS NECESSARY TO OBTAIN A DENSE STAND OF GRASS.
7. STABILIZATION IS THE BEST FORM OF EROSION CONTROL. ALL DISTURBED AREAS WHICH ARE NOT OTHERWISE STABILIZED SHALL BE TOP SOILED AND SEEDED, TEMPORARILY OR PERMANENTLY IN ACCORDANCE WITH THE NORTH CAROLINA SEDIMENT CONTROL REGULATIONS. PERMANENT SEEDING AND GRASS ESTABLISHMENT IS REQUIRED PRIOR TO PROJECT COMPLETION AND ACCEPTANCE.
8. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.
9. WHEN A CRUSHED STONE CONSTRUCTION ENTRANCE HAS BEEN COVERED WITH SOIL OR HAS BEEN PUSHED INTO THE SOIL BY CONSTRUCTION TRAFFIC, IT SHALL BE REPLACED WITH A DEPTH OF STONE EQUAL TO THAT OF THE ORIGINAL APPLICATION.
10. ALL DRAINAGE INLETS SHALL BE PROTECTED FROM SILTATION. INEFFECTIVE PROTECTION DEVICES SHALL BE IMMEDIATELY REPLACED AND THE INLET CLEANED. FLUSHING IS NOT AN ACCEPTABLE METHOD OF CLEANING.
11. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE, AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AN EROSION AND SEDIMENTATION PERMIT FROM THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES FOR ANY NEW OFF-SITE BORROW AREA. ANY OFF-SITE BORROW AND WASTE REQUIRED FOR THIS PROJECT MUST COME FROM AN APPROVED EROSION CONTROL PLAN SITE, A SITE REGULATED UNDER THE MINING ACT OF 1971, OR A LANDFILL REGULATED BY THE DIVISION OF SOLID WASTE MANAGEMENT. DEBRIS FROM DEMOLITION ACTIVITIES SHOULD BE DISPOSED OF AT AN APPROVED FACILITY.

SELF-INSPECTION

PERSONS RESPONSIBLE FOR LAND DISTURBING ACTIVITIES MUST INSPECT THE SEDIMENT AND EROSION CONTROL MEASURES ON THIS PROJECT AFTER EACH PHASE TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. SELF-INSPECTION REPORTS ARE REQUIRED. A SAMPLE REPORT AND DETAILS OF THE PROGRAM CAN BE FOUND ON THE LAND QUALITY WEBSITE.

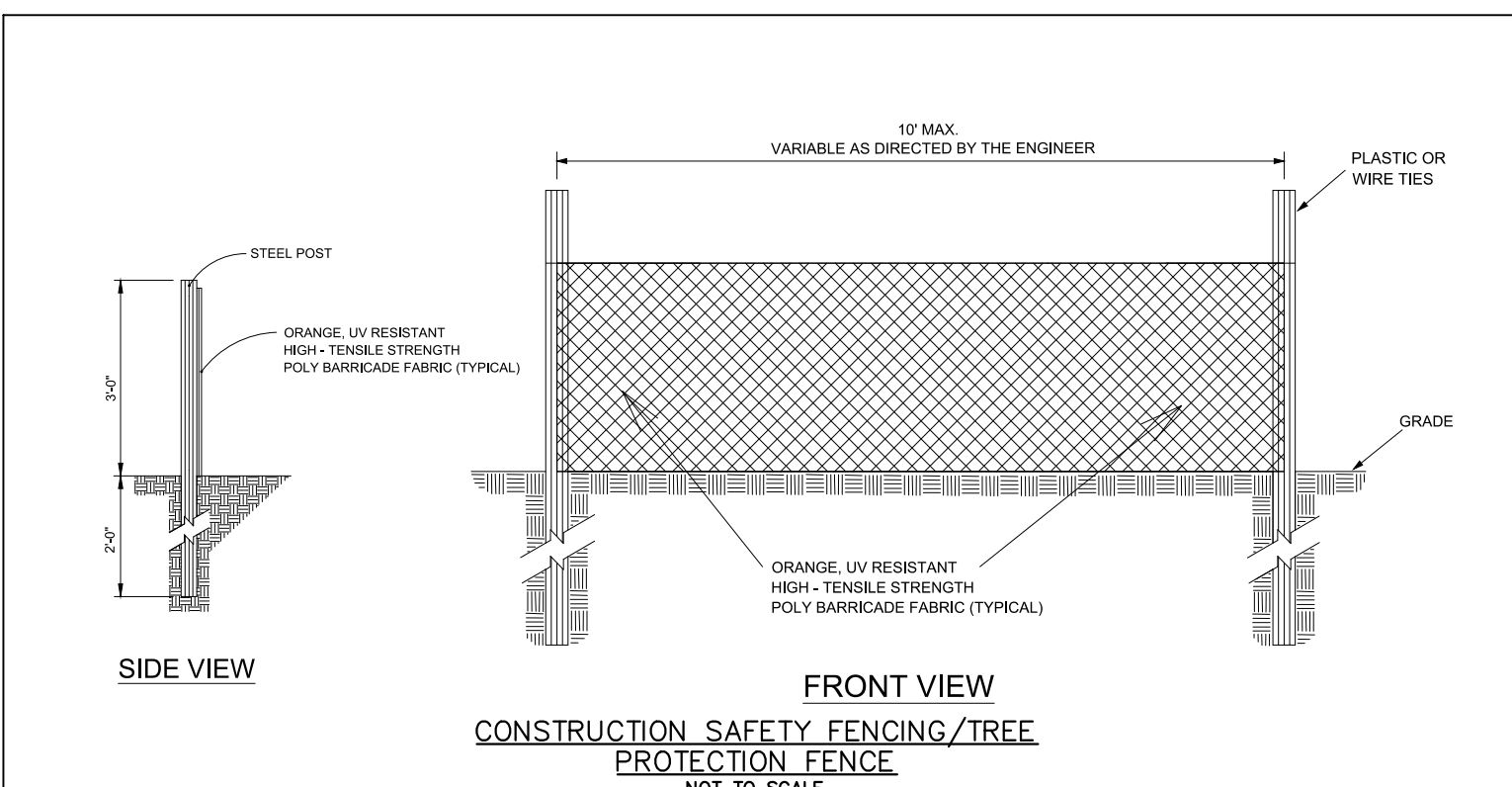
STABILIZATION REQUIREMENTS

Stabilization Requirements:
(03-11-16)S-3
Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective August 3, 2011 issued by the North Carolina Department of Environment and Natural Resources Division of Water Quality. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 3:1 or flatter, with a slope length of 50 ft. or less
- Slopes 4:1 or flatter

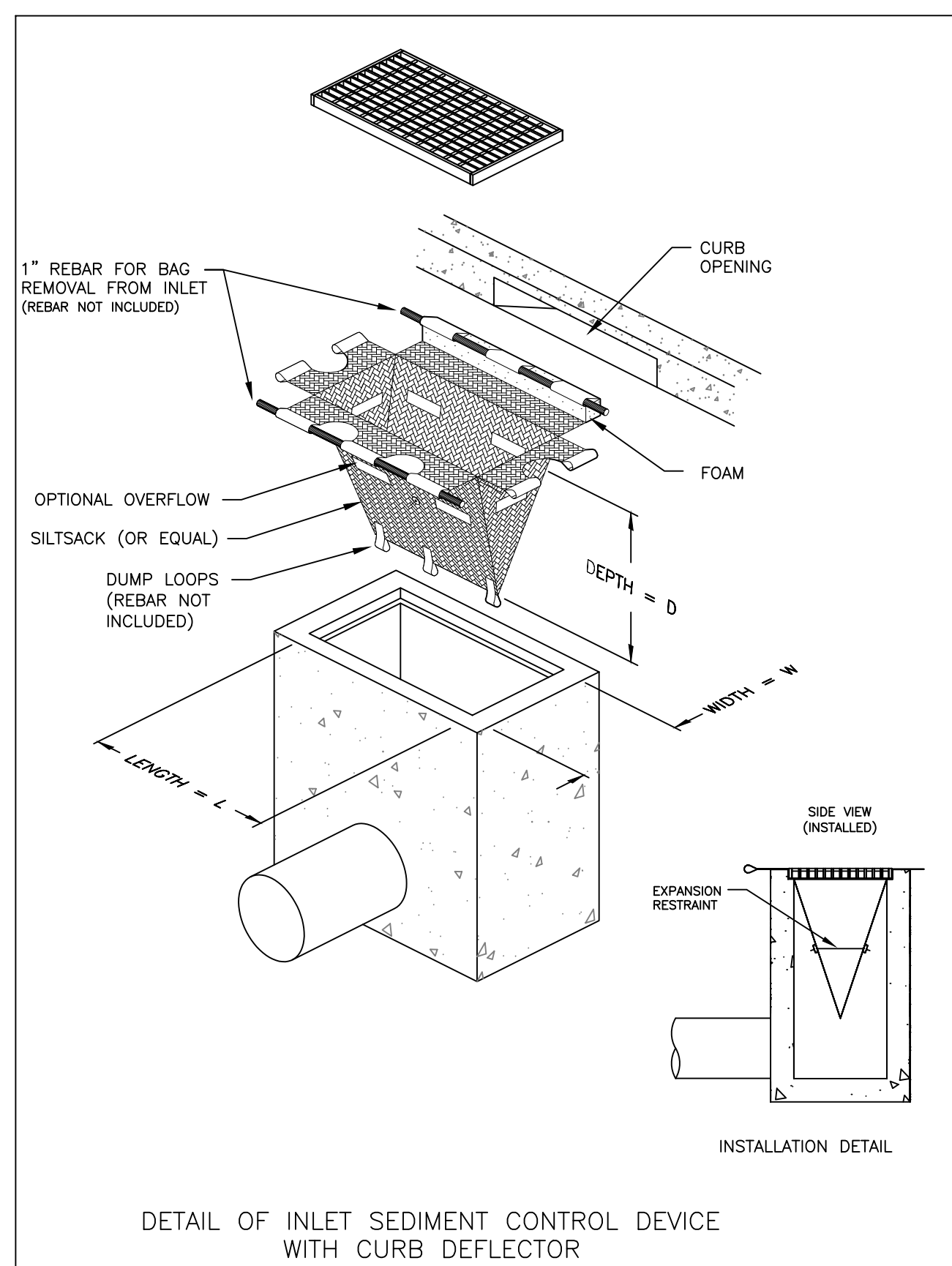
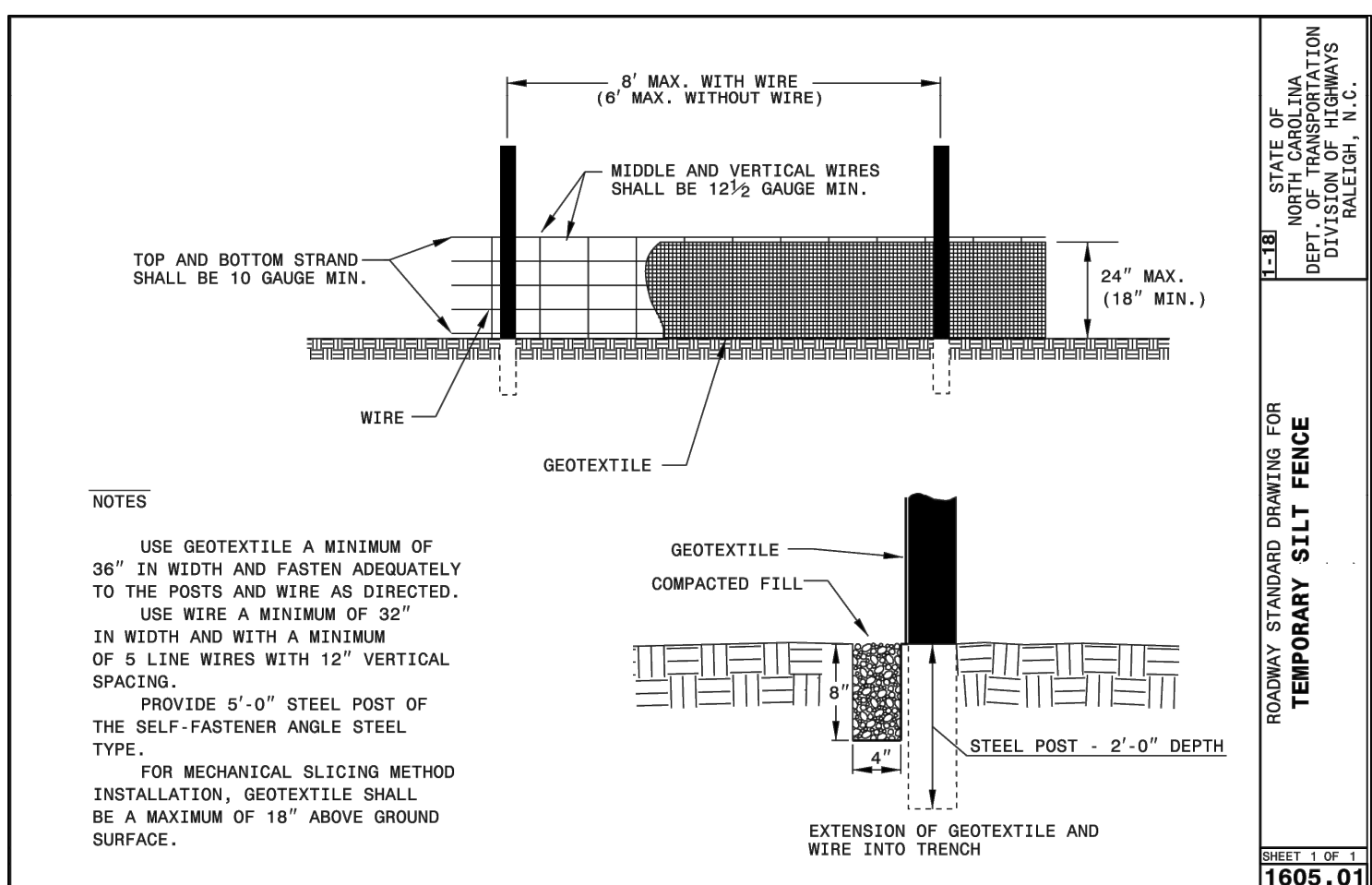
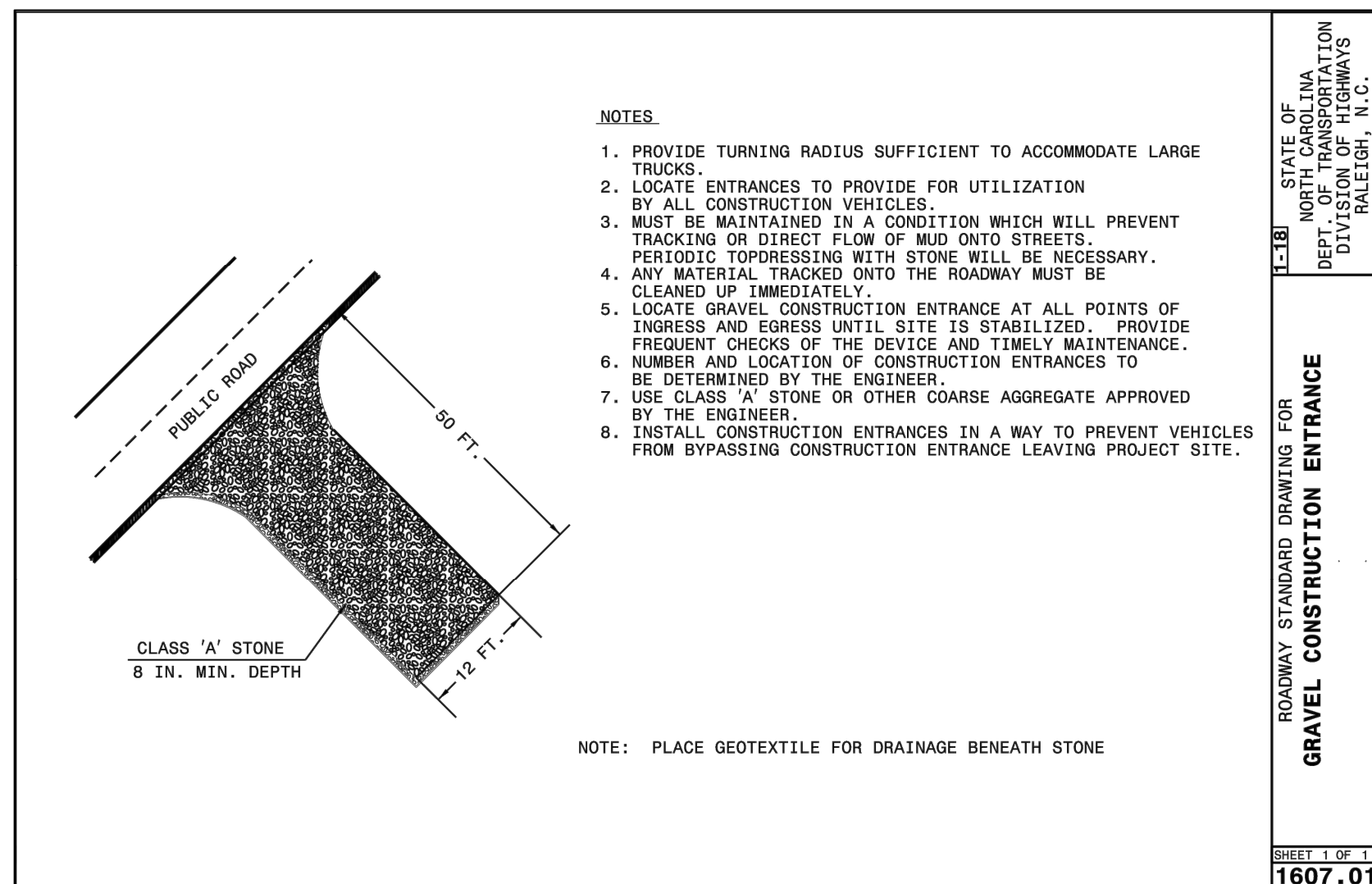
The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NAC 044.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

Provisions for a permanent ground cover sufficient to restrain erosion must be accomplished within 15 working days of 90 calendar days following completion of construction or development, whichever period is shorter.



MAINTENANCE PLAN

1. ALL EROSION AND SEDIMENTATION CONTROL DEVICES WILL BE CHECKED BY THE CONTRACTOR FOR STABILITY AND OPERATION WITHIN 24 HOURS AFTER EVERY RUNOFF PRODUCING RAINFALL INCLUDING ANY STORM EVENT GREATER THAN 0.5" OF PRECIPITATION DURING ANY 24 HOUR PERIOD, BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED. DAMAGED OR INEFFECTIVE DEVICES SHALL BE REPAIRED OR REPLACED AS NECESSARY.
2. MAINTAIN EROSION CONTROL DEVICES AS FOLLOWS:
 - TEMPORARY SILT FENCE – REMOVE SEDIMENT DEPOSITS WHEN IT BECOMES 0.5 FT DEEP AT THE FENCE AND AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. AVOID UNDERMINING THE FENCE.
 - TEMPORARY CHECK DAM – REMOVE SEDIMENT ACCUMULATION BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION. ADD STORE TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.
 - STORM DRAIN INLET PROTECTION – REMOVE SEDIMENT AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAINFALL.
 - TEMPORARY DIVERSION DITCH – INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AFTER EVER RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND.
 - SEDIMENT DAMS – REMOVE SEDIMENT AND RESTORE BASIN TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. CHECK THE STRUCTURE FOR DAMAGE FROM EROSION TO ENSURE IT IS A MINIMUM 1.5 FEET BELOW THE LOW POINT OF THE EMBANKMENT.
 - TEMPORARY SLOPE DAM – INSPECT THE SLOPE DRAIN AND SUPPORTING DIVERSION AFTER EVERY RAINFALL AND PROMPTLY MAKE NECESSARY REPAIRS. WHEN THE PROTECTED AREA HAS BEEN PERMANENTLY STABILIZED, TEMPORARY MEASURES MAY BE REMOVED. MATERIALS DISPOSED OF PROPERLY AND ALL DISTURBED AREAS STABILIZED APPROPRIATELY.
 - SEDIMENT TUBE – CHECK SEDIMENT TUBE AFTER EACH RAINFALL. REMOVE SEDIMENT AND RESTORE ORIGINAL VOLUME WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE DESIGN VOLUME.
3. ALL GRADED AREAS WILL BE SEEDED, FERTILIZED AND MULCHED ACCORDING TO SPECIFICATIONS, SPECIAL PROVISIONS AND THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL TO MAINTAIN A VIGOROUS, DENSE, VEGETATIVE COVER WITHIN REQUIRED SOIL STABILIZATION TIMEFRAMES. IF WORK ON THE PROJECT CEASES FOR MORE THAN THE AFOREMENTIONED LENGTH OF TIME, ALL DISTURBED AREAS SHALL HAVE TEMPORARY VEGETATIVE GROUND COVER ESTABLISHED AND EROSION CONTROL DEVICES MAINTAINED.
4. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES AS MAY BE REQUIRED TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION.
5. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
6. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO THE PAVED ROADWAY CONSTRUCTION AREAS. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT AS MAY BE REQUIRED.
7. TEMPORARY DIVERSION TRENCHES AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR DIVERT SEDIMENT. LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS. TEMPORARY SEDIMENT BASIN MUST BE MAINTAINED PRIOR TO TRANSITIONING TO PERMANENT DRY OR WET BASINS.



SILTSACK® SPECIFICATIONS

NOTE: THE SILTSACK WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS.

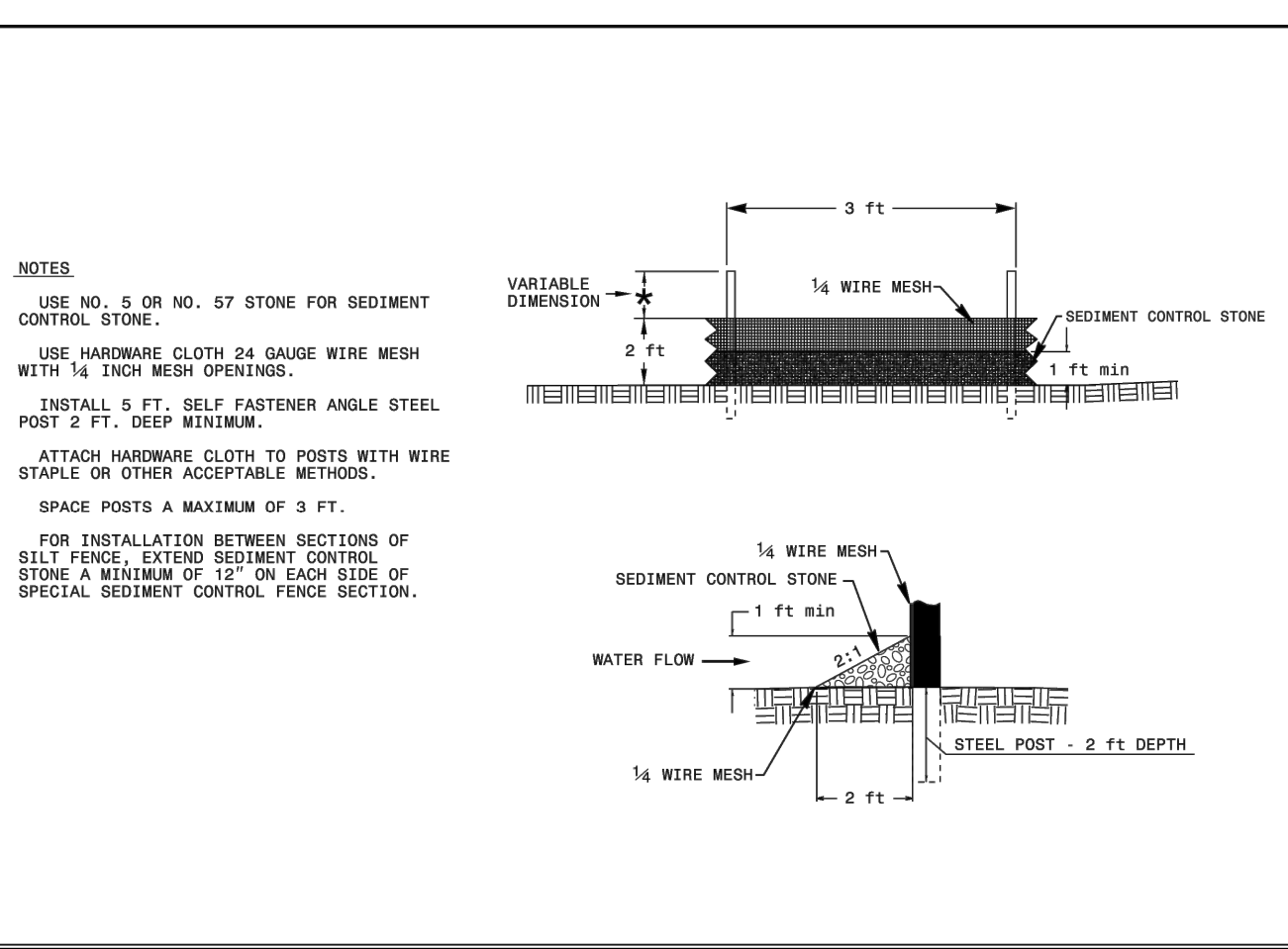
REGULAR FLOW SILTSACK®
(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80 %
APPARENT OPENING SIZE	ASTM D-4751	40 US Sieve
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

HI-FLOW SILTSACK®
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US Sieve
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1

(FOR AREAS WHERE THERE IS A CONCERN FOR OIL RUN-OFF OR SPILLS) DEPENDING ON YOUR PARTICULAR APPLICATION, THE SILTSACK CAN BE MADE FROM EITHER ONE OF THE ABOVE FABRICS WITH AN OIL-ABSORBANT PILLLOW INSERT OR, MADE COMPLETELY FROM AN OIL-ABSORBANT SILTSACK, WITH A WOVEN PILLLOW INSERT.



SOIL STABILIZATION TIME FRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 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.

SEEDING AND MULCHING:
(West)
The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

Shoulder and Median Areas

August 1 – June 1	May 1 – September 1
20# Kentucky Bluegrass	20# Kentucky Bluegrass
75# Hard Fescue	75# Hard Fescue
25# Rye Grain	10# German or Browntop Millet
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

Areas Beyond the Mowing Pattern, Waste and Borrow Areas:

August 1 – June 1	May 1 – September 1
100# Tall Fescue	100# Tall Fescue
15# Kentucky Bluegrass	15# Kentucky Bluegrass
30# Hard Fescue	30# Hard Fescue
25# Rye Grain	10# German or Browntop Millet
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

Approved Tall Fescue Cultivars

06 Dust	Escalade	Justice	Serengeti
2nd Millennium	Essential	Kalahari	Shelby
3rd Millennium	Evergreen 2	Kitty Hawk 2000	Sheridan
Apache III	Falcon IV	Legitimate	Signia
Avenge	Falcon NG	Lexington	Silver Hawk
Barlexos	Falcon V	LSD	Silverstar
Barlexos II	Faith	Magellan	Shenandoah Elite
Bar Fa	Fat Cat	Matador	Sidewinder
Barrera	Festnova	Millennium	SRP Skyline
Barrington	Fidelity	Monet	Solara
Barrobusto	Finelawn Elite	Mustang 4	Southern Choice II
Barvado	Finelawn Xpress	Ninja 2	Speedway
Biltmore	Finesse II	Ol' Glory	Spyder LS
Bingo	Firebird	Olympic Gold	Sunset Gold
Bizem	Firecracker LS	Padre Tacoca	Sunwatch
Bizeza	Patagonia	Blaede Rrunner II	Tanzania
Five Point	Pedigree	Trio	Bonsai
Focus	Picasso	Tahoe II	Talladega
Braveheart	Forte	Piedmont	Tarheel
Bravo	Garrison	Plantation	Terrano
Bullseye	Gazelle II	Proseeds 5301	Titan Itd
Canovaro	Gold Medallion	Prospect	Titanium LS
Catalyst	Grande 3	Pure Gold	Quest
Coyenne	Greenlooks	Greenkeeper	Raptor II
Crossmore Rz	Greenkeeper	Rebel Exeda	Tulsa Time
Chipper	Gremlin	Rebel Sentry	Turbo
Cochise IV	Greystone	Rebel IV	Turbo RZ
Constitution	Guardian 21	Regiment II	Tuxedo RZ
Corgi	Guardian 41	Regenerate	Ultimate
Corona	Hemi	Rendition	Venture
Coyote	Honky Tonk	Rhambler 2 SRP	Umbrella
Darlington	Hot Rod	Rembrandt	
Davinci	Hunter	Inferno	
Daytona	Impero	Dominion	Innovator
Reunion	Watchdog	DynamicIntegrity	RNPtremegreen
Riverside	Wolfpack II	Endeavor	Jamboree
Dynasty Jaguar 3	Rocket		
Scorpion			

Approved Kentucky Bluegrass Cultivars:

4-Season	Blue Velvet	Gladstone	Quantum
Leap	Alexa II	Blueberry	Granite
Rambo	America	Boomerang	Hampton
Rhapsody	Apollo	Brilliant	Harmonie
Rhythm	Arcadia	Cabernet	Impact
Rita	Aries	Champagne	Jefferson
Royce	Armada	Champlain	Juliet
Rubicon	Arrow	Chicago II	Jump Start
Rugby II	Arrowhead	Corsair	Keeneland
Shiraz	Aura	Courtyard	Langara
Avid	Delight	Liberator	Skye Award
Diva	Madison	Solar Eclipse	Awesome
Dynamo	Mercury	Sonoma	Bantera
Eagleton	Midnight	Sorbonne	Barduke
Emblem	Midnight II	Starburst	Barnique
Empire	Moonlight	Sudden Impact	Baroness
Envecta	Moonlight SLT	Total Eclipse	Barrister
Everest	Nycture	Touche	Barvette HGT
Everglade	Nu Destiny	Tsunami	Bedazzled
Excursion	Nu	Chicango	Unique
Belissimo	Freedom II	Nu Glade	Valor
Bewitched	Freedom III	Odysey	Voyager II
Beyond	Front Page	Perfection	Washington
Blacksburg II	Futurity	Pinot	Zinfandel
Blackstone	Gaelic	Princeton 105	Blue Note Ginney II
Prosperity			

Approved Hard Fescue Cultivars:

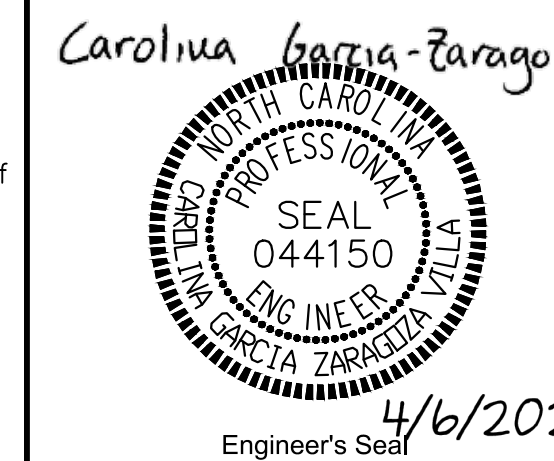
Aurora II	Eureka II	Oxford	Scaldis II
Aurora Gold	Firefly	Reliant II	Spartan II
Berkshire	Granite	Reliant IV	Stonenge
Bighorn GT	Chariot	Heron	Nordic
Rescue 911	Rhino		

On cut and fill slopes 2:1 or steeper add 20# Sericea Lespedeza January 1 – December 31.

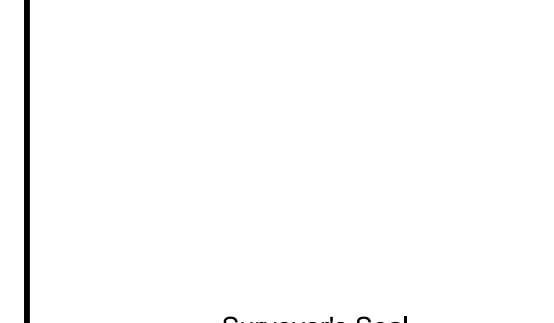
Fertilizer shall be 10–20–20 analysis. A different analysis of fertilizer may be used provided the 1–2–2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10–20–20 analysis and as directed.



PREPARED BY
ENGINEERING DEPARTMENT
CITY OF CONCORD
P.O. BOX 308
CONCORD N.C. 28026
(704) 920-5425



4/6/2021
Engineer's Seal



Surveyor's Seal

DUVAL ST CULVERT REPLACEMENT
EROSION CONTROL DETAILS
PROJECT # : 2014-009

REV. #	DATE	DESCRIPTION	BY	CC
0	03/24/21	FINAL FOR CONSTRUCTION	BCC	BCC
1	04/06/21	REVISED PER NCDOT COMMENTS		
DESIGNED BY:	CGZ			
DRAWN BY:	BCC			
CHECKED BY:	CGZ			
SCALE:	AS SHOWN			
DATE:	02/18/21			
PROJECT NUMBER:	2014-009			
SHEET:	15	OF:	28	16



PREPARED BY
ENGINEERING DEPARTMENT
CITY OF CONCORD
P.O. BOX 308
CONCORD N.C. 28026
(704) 920-5425

Carolina Garcia-Zaragoza



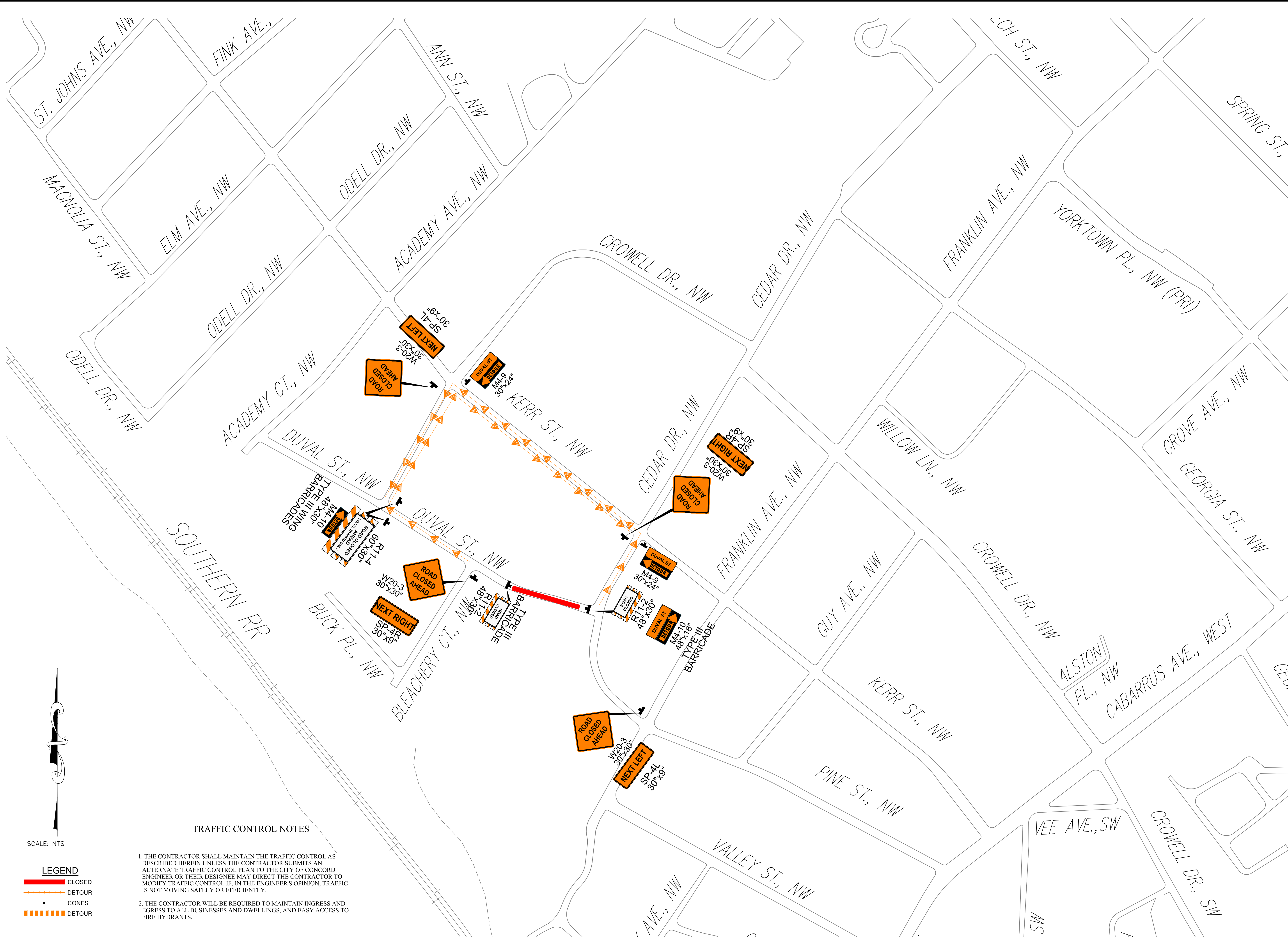
Engineer's Seal

Surveyor's Seal

**DUVAL ST CULVERT REPLACEMENT
TRAFFIC CONTROL PLAN**
PROJECT #: 2014-009

REV. #	DATE	DESCRIPTION	BY	BCC	BCC
0	03/24/21	FINAL FOR CONSTRUCTION			
1	04/06/21	REVISED PER NCDEO COMMENTS			

DESIGNED BY:	CGZ
DRAWN BY:	BCC
CHECKED BY:	CGZ
SCALE:	AS SHOWN
DATE:	02/18/21
PROJECT NUMBER:	2014-009
SHEET:	16 OF 16



TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL MAINTAIN THE TRAFFIC CONTROL AS DESCRIBED HEREIN UNLESS THE CONTRACTOR SUBMITS AN ALTERNATE TRAFFIC CONTROL PLAN TO THE CITY OF CONCORD ENGINEER OR THEIR DESIGNEE MAY DIRECT THE CONTRACTOR TO MODIFY TRAFFIC CONTROL IF, IN THE ENGINEER'S OPINION, TRAFFIC IS NOT MOVING SAFELY OR EFFICIENTLY.
2. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN INGRESS AND EGRESS TO ALL BUSINESSES AND DWELLINGS, AND EASY ACCESS TO FIRE HYDRANTS.

SCALE: NTS

LEGEND

- CLOSED
- DETOUR
- CONES
- DETOUR

