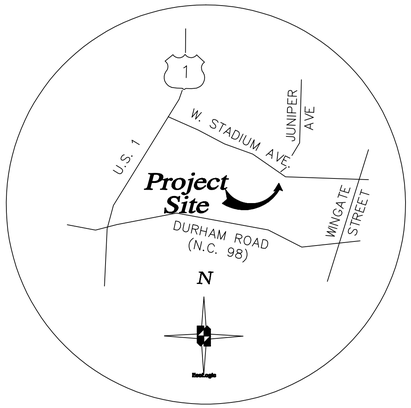
VICINITY MAP

-NOT TO SCALE-

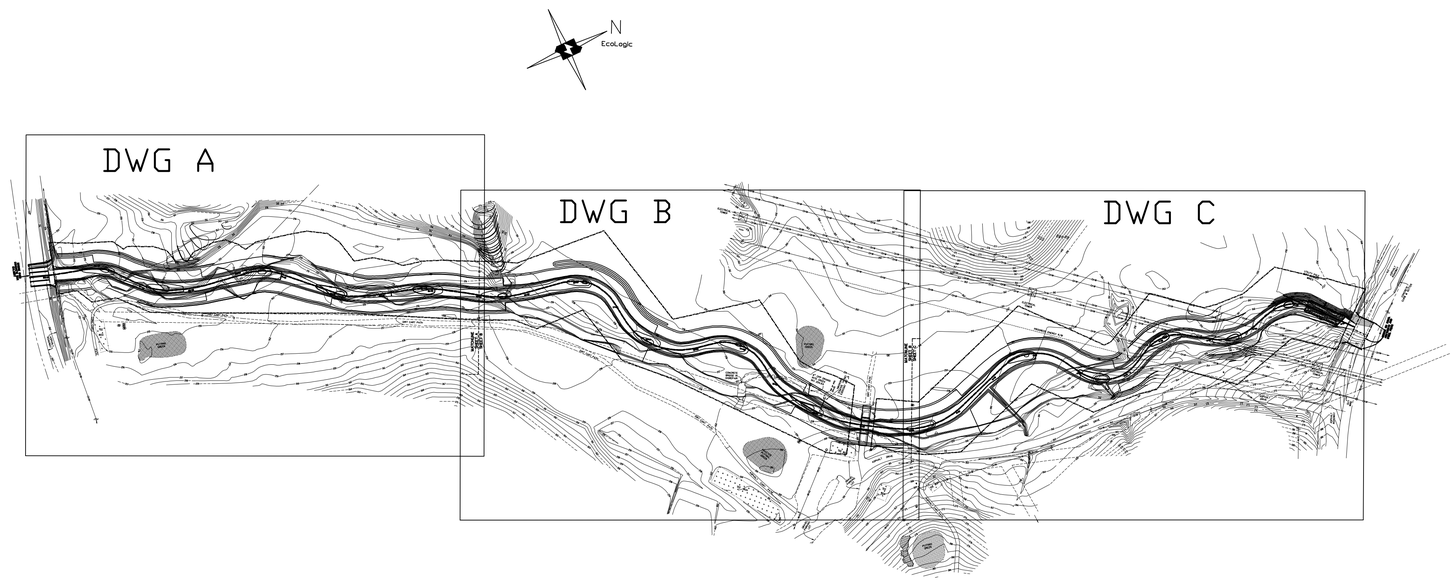


RECORD DRAWINGS

RICHLAND CREEK STREAM RESTORATION

WAKE COUNTY, NC

NC ECOSYSTEM ENHANCEMENT PROGRAM
1652 MAIL SERVICE CENTER, RALEIGH, NC, 27699-1652



DRAWING INDEX

1 Title Sheet

2 Legend & Symbols

3 Design Plan at Bid Award (3 Sheets)

4 As-built Survey (4 Sheets)

5 Record Drawing (3 Sheets)

6 As-built Planting Zones (3 Sheets)

CONTRACTOR:
RIVER WORKS, INC.
8000 REGENCY PKWY., STE. 200
CARY, NC 27518
PHONE: 919/459-9001
FAX: 919/463-5490
PROJECT MANAGER: WILL PEDERSEN

ECOLOGIC

SITE DATA
PRE-CONST STREAM LENGTH = 2,875 FT.
CONSTRUCTED LENGTH = 2,980 FT.
LAT/LONG AT STATION 0+00:
35.984705N, -78.519761W

TOTAL ACREAGE = 109+/- ACRES
PERMITTED DISTURBED AREA = 13.25 ACRES
PROJECT DRAINAGE AREA = 7.8 SQ. MILES

SCO NO. 020591101

EEP PROJECT MANAGER:
HEATHER SMITH

EEP REVIEW COORDINATOR:
LIN XU

DESIGNER:
ECOLOGIC ASSOCIATES, P.C.
3808 CLIFTON ROAD
GREENSBORO, NC 27407
PHONE: 336/632-4441
FAX: 336/632-4445
PROJECT MANAGER: MARK TAYLOR, PE

PROJECT ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15975 ENGINEER MARK A. TAYLOR
SIGNATURE, SEAL & DATE

PROPERTY LINE

CONSERVATION EASEMENT

EASEMENT BOLLARDS

UTILITY EASEMENT

LIMIT OF DISTURBANCE

7+00 PROPOSED STREAM THALWEG

TD TD TEMP. DIVERSION

SILT FENCE

CHECK DAMS

CONSTRUCTED RIFFLE

SINGLE ARM VANE

ROOT WAD

ROCK SILT SCREEN

RIP-RAP OUTLET PROTECTION

STEP-DOWN CHANNEL

CHANNEL PLUG

52" PINE TREE PROTECTION FENCE

CONSTRUCTION ENTRANCE

TEMPORARY STREAM CROSSING

TEMPORARY SEDIMENT TRAP

B TYPE B SEDIMENT TRAP

RIP-RAP BANK PROTECTION

BRUSH MATTRESS

JURISDICTIONAL WETLAND

** NOTE - SYMBOLS MAY DIFFER SLIGHTLY ON AS-BUILT SHEETS - SEE SURVEYOR'S LEGEND ON AS-BUILT LAYER.

LIGHT POLE

POWER POLE GUY ANCHOR

OHW OVERHEAD WIRES

S SANITARY MANHOLE

SS SANITARY SEWER

W WATER VALVE BOX

W WATER SPIGOT

CAST IRON CATCH BASIN

STORM PIPE (EXISTING)

STORM PIPE (PROPOSED)

T FIBER OPTIC CABLE MARKER

B BALL WASHER

M MAIL BOX

-or- SIGN

TBM TEMP. BENCH MARK

SOIL SAMPLING LOCATION

WOOD LINE

-or- TREE (SIZE AND TYPE NOTED)

ECOLOGIC CONTROL POINT

M&S CONTROL POINT

PL PROPERTY LINE

IPF	IRON PIPE FOUND
R/W	RIGHT-OF-WAY
N/F	NOW OF FORMERLY
T/C	TOP OF CURB
BW	BOTTOM OF WALL
TW	TOP OF WALL
BFE	FEMA BASE FLOOD ELEVATION
RCP	CONCRETE PIPE
DIP	DUCTILE IRON PIPE
CPP	CORRUGATED PLASTIC PIPE
PVC	PVC PLASTIC PIPE
+571 3	SPOT ELEVATION
18" OAK	SPECIMEN TREE - SIZE AND TYPE

ECOLOGIC
ECOLOGIC ASSOCIATES, P.C.
3900 LUCAS DRIVE
GREENSBORO, NC 27407
PHONE: 336/632-4441
FAX: 336/632-4445
www.ecologic-pc.com
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PROJECT: RICHLAND CREEK STREAM RESTORATION WAKE COUNTY, NC

PREPARED FOR: NORTH CAROLINA ECOSYSTEM ENHANCEMENT PROGRAM

NO.	DESCRIPTION	DATE
1	WETLAND, ETC.	8-2-10

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 10975 ENGINEER MARK A. TAYLOR

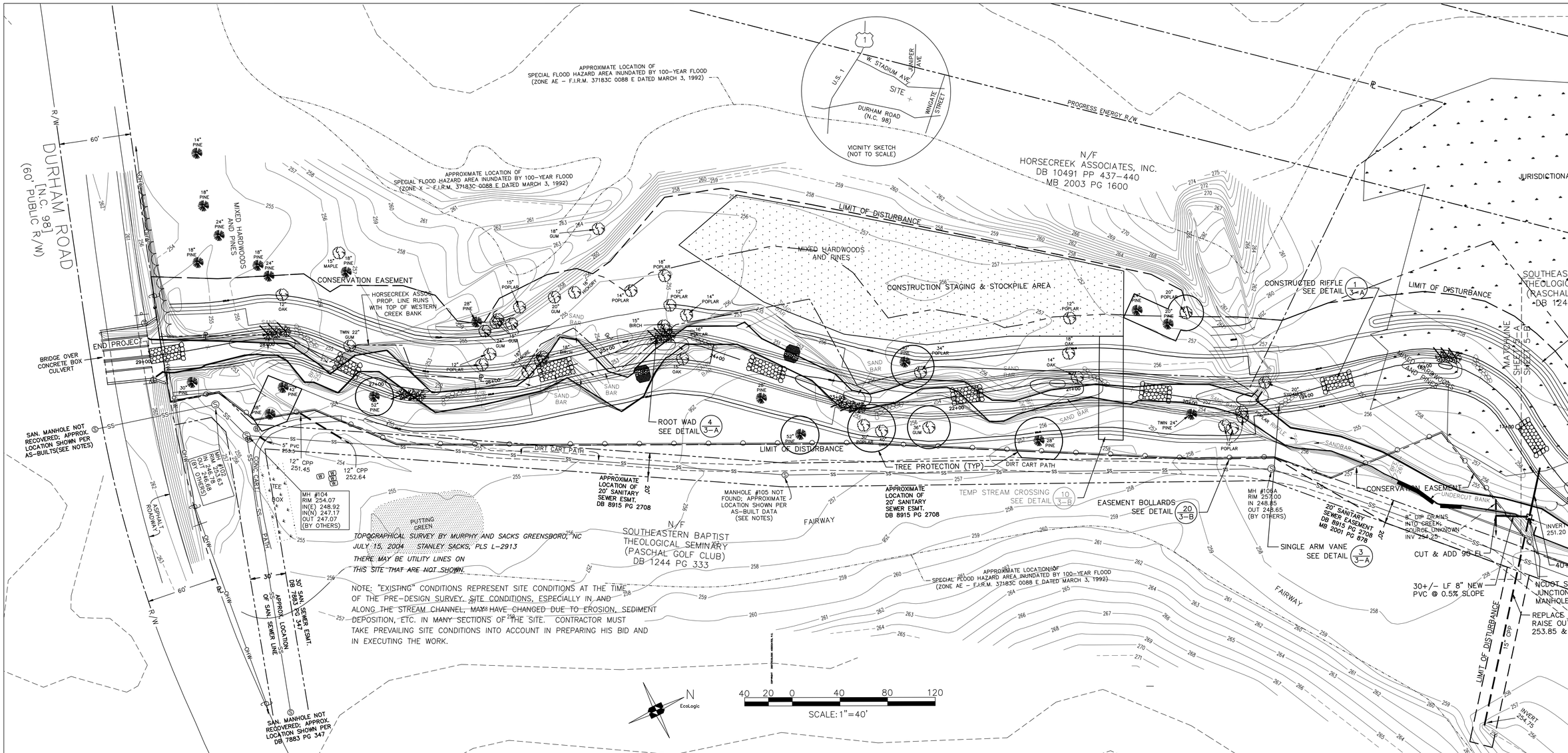
LEGEND & SYMBOLS

SCALE: NTS
DATE: 7/28/10
DRN. BY: MAT
CHECKED BY: MAT

PROJECT NO: 020591101

SHEET 2 OF 15

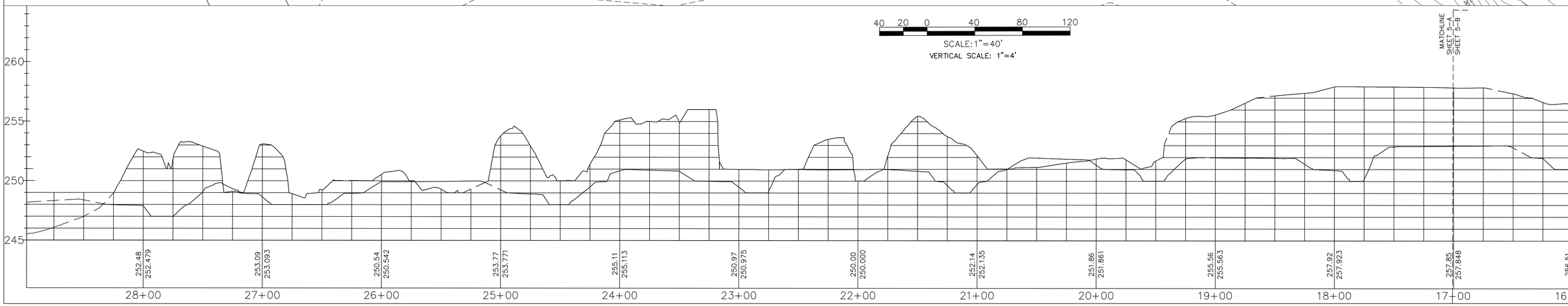
DRAWING 2



TOPOGRAPHICAL SURVEY BY MURPHY AND SACKS GREENSBORO, NC JULY 15, 2004 STANLEY SACKS, PLS L-2913

THERE MAY BE UTILITY LINES ON THIS SITE THAT ARE NOT SHOWN.

NOTE: "EXISTING" CONDITIONS REPRESENT SITE CONDITIONS AT THE TIME OF THE PRE-DESIGN SURVEY. SITE CONDITIONS, ESPECIALLY IN AND ALONG THE STREAM CHANNEL, MAY HAVE CHANGED DUE TO EROSION, SEDIMENT DEPOSITION, ETC. IN MANY SECTIONS OF THE SITE. CONTRACTOR MUST TAKE PREVAILING SITE CONDITIONS INTO ACCOUNT IN PREPARING HIS BID AND IN EXECUTING THE WORK.



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PHONE: 336/632-4441
FAX: 336/632-4445

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ECOLOGIC
ECOLOGIC ASSOCIATES, P.C.
3808 CLIFTON ROAD
GREENSBORO, NC 27407

PROJECT:

RICHLAND CREEK
STREAM RESTORATION
WAKE COUNTY, NC

PREPARED FOR:

NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM

NO.	DESCRIPTION	DATE
5	LIMIT OF DIST.	10/21/09
4	LIMIT OF DIST.	10/1/08
3	BOLLARD LINE	9/29/08
2	STRUCS, ETC.	6/12/08
1	LINE TYPES	8/9/07

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 10975 ENGINEER MARK A. TAYLOR

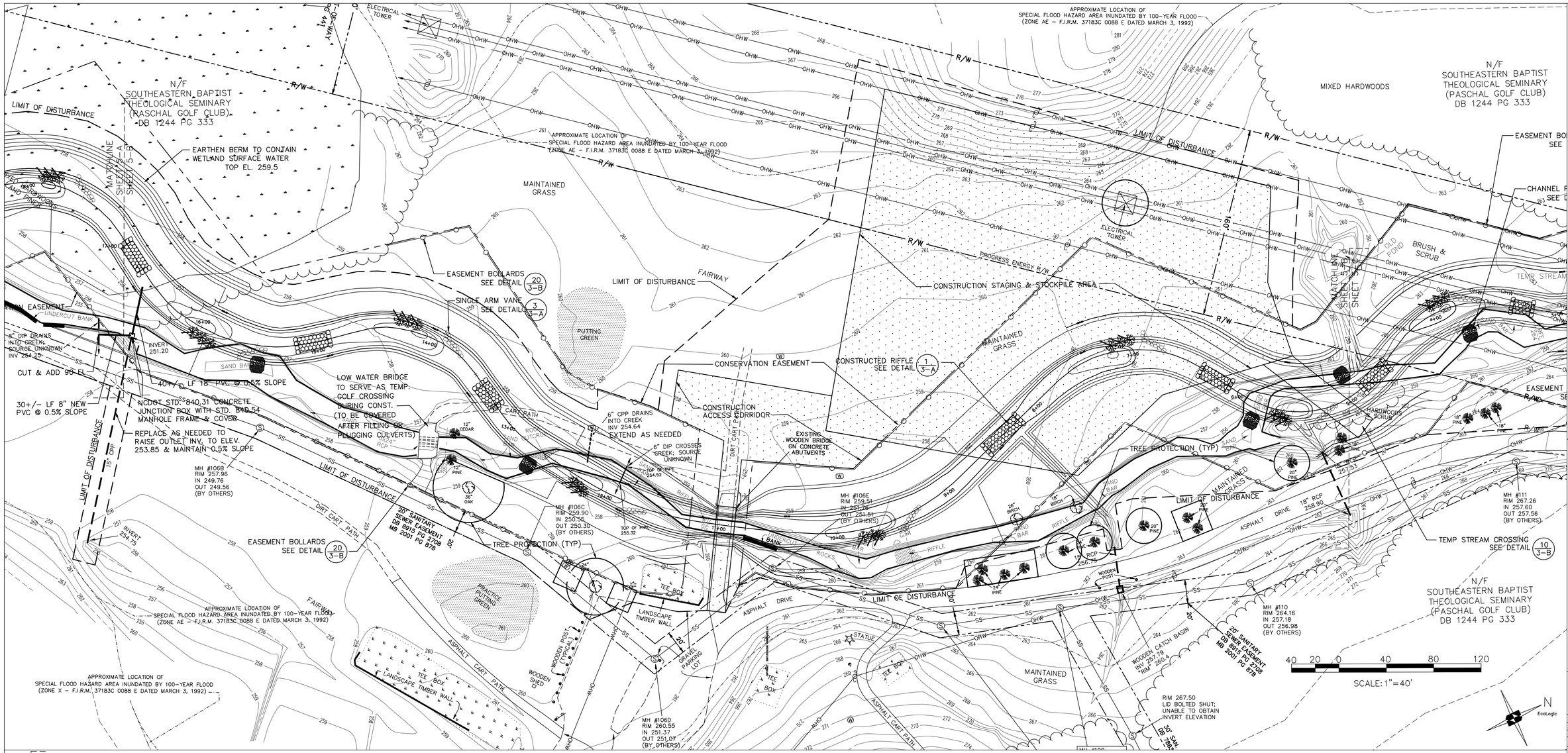
DESIGN PLAN
AT
BID AWARD

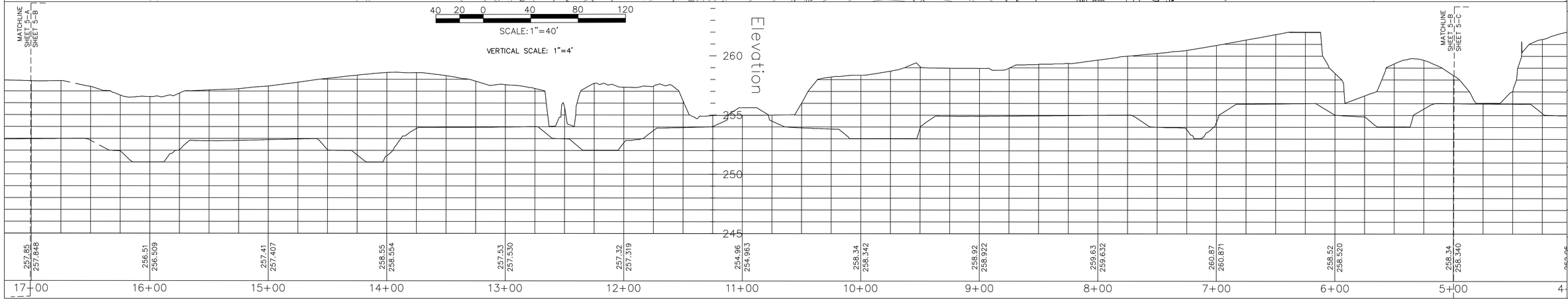
SCALE: 1"=40'
DATE: 7/28/10
DRN. BY: KDH
CHECKED BY: MAT

PROJECT NO:
020591101

SHEET 3 OF 15

DRAWING
3-A





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EcoLogic
ECOLOGIC ASSOCIATES, P.C.
3808 CLIFTON ROAD
GREENSBORO, NC 27407

PROJECT:

RICHLAND CREEK
STREAM RESTORATION
WAKE COUNTY, NC

PREPARED FOR:

NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM

NO.	DESCRIPTION	DATE
3	BOLLARD LINE	9/29/08
2	STRUCS, ETC.	6/12/08
1	LINE TYPES	8/9/07

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 10975 ENGINEER MARK A. TAYLOR

DESIGN PLAN
AT
BID AWARD

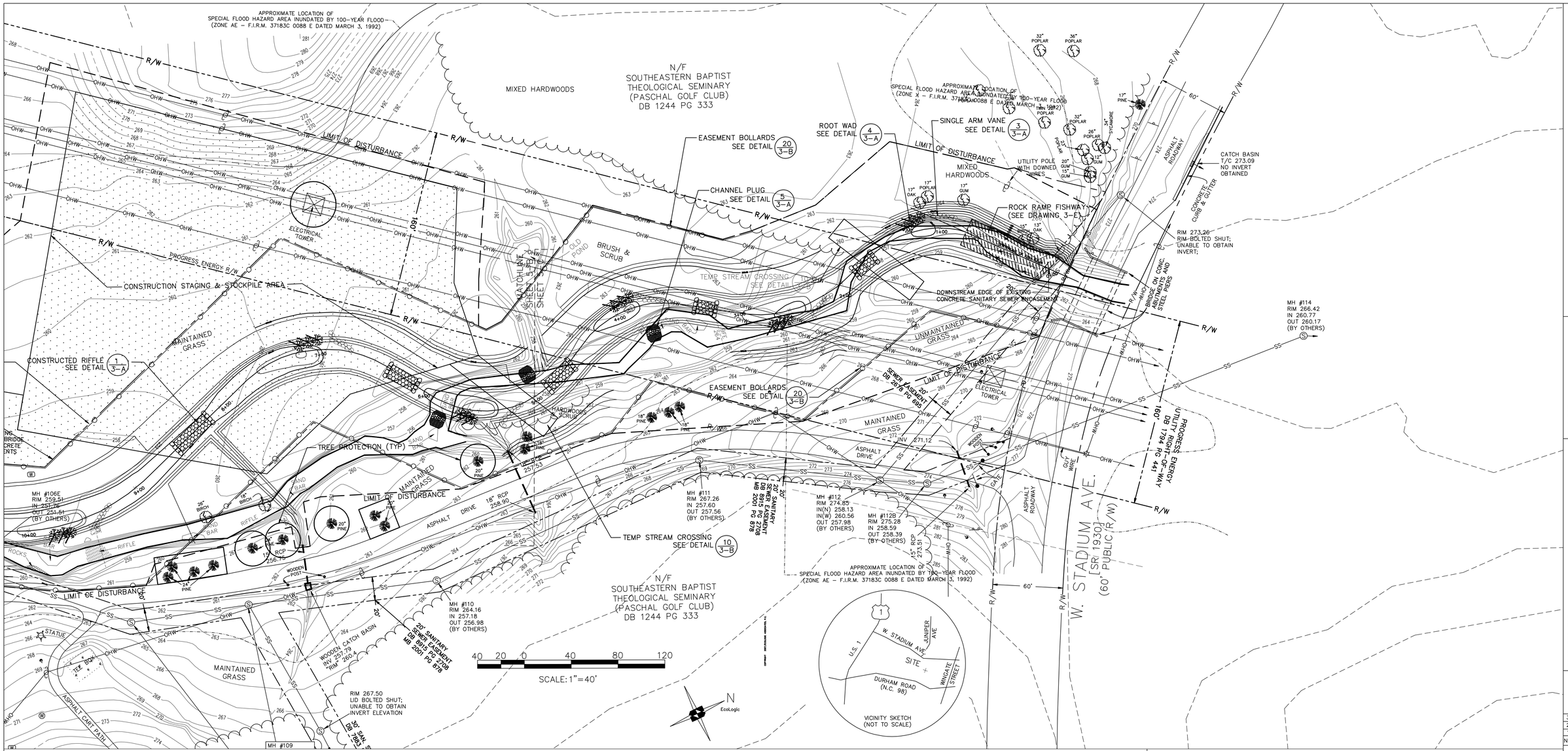
SCALE: 1"=40'
DATE: 7/28/10
DRN. BY: KDH
CHECKED BY: MAT

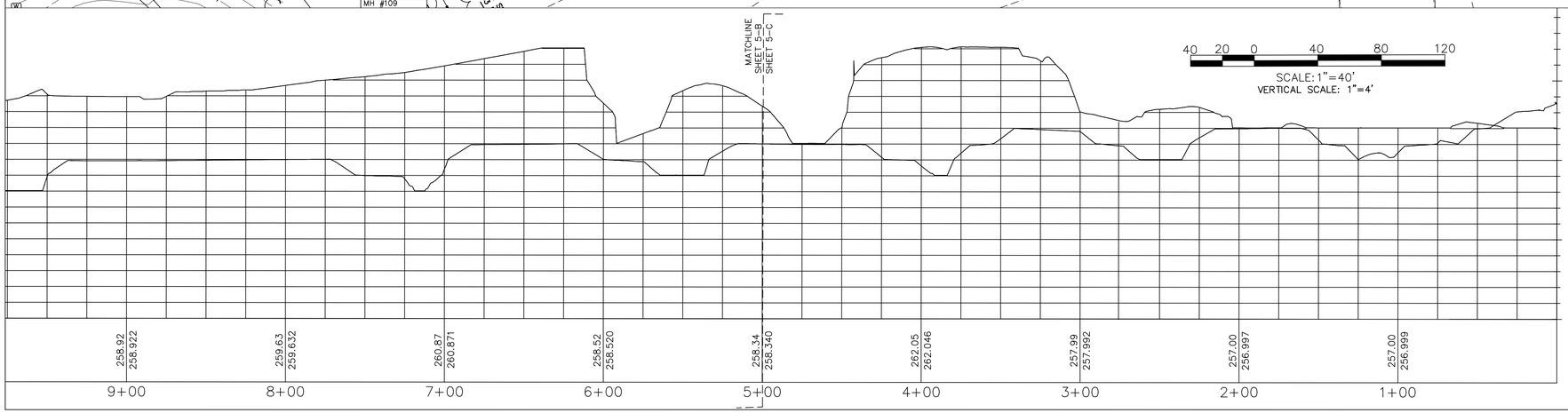
PROJECT NO:
020591101

SHEET 4 OF 15

DRAWING

3—B





EcoLogic
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PROJECT:
RICHLAND CREEK
STREAM RESTORATION
WAKE COUNTY, NC

PREPARED FOR:
NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM

NO.	DESCRIPTION	DATE
3	BOLLARD LINE	9/29/08
2	STRUCS, ETC.	6/12/08
1	LINE TYPES	8/9/07

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 10975 ENGINEER MARK A. TAYLOR

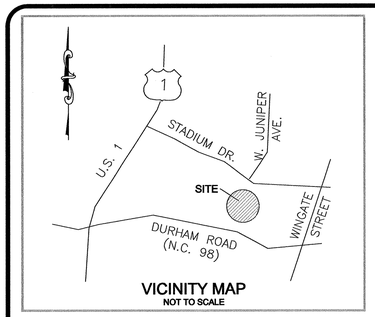
DESIGN PLAN
AT
BID AWARD

SCALE: 1"=40'
DATE: 7/28/10
DRN. BY: KDH
CHECKED BY: MAT

PROJECT NO:
020591101

SHEET 5 OF 15

DRAWING
3–C



VICINITY MAP
NOT TO SCALE

BASIS OF BEARING
NC GRID NAD 83

I, DAVID S. TURNER, AS A DULY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF NORTH CAROLINA, HEREBY CERTIFY THAT THE DATA SHOWN ON THIS DRAWING, WAS OBTAINED UNDER MY SUPERVISION, IS AN ACCURATE AND COMPLETE REPRESENTATION OF WHAT WAS CONSTRUCTED IN THE FIELD, AND THAT THE PHYSICAL DIMENSIONS OR ELEVATIONS SHOWN THUS ARE AS-BUILT CONDITIONS EXCEPT WHERE OTHERWISE NOTED HERON. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS 25TH DAY OF August, 2010.

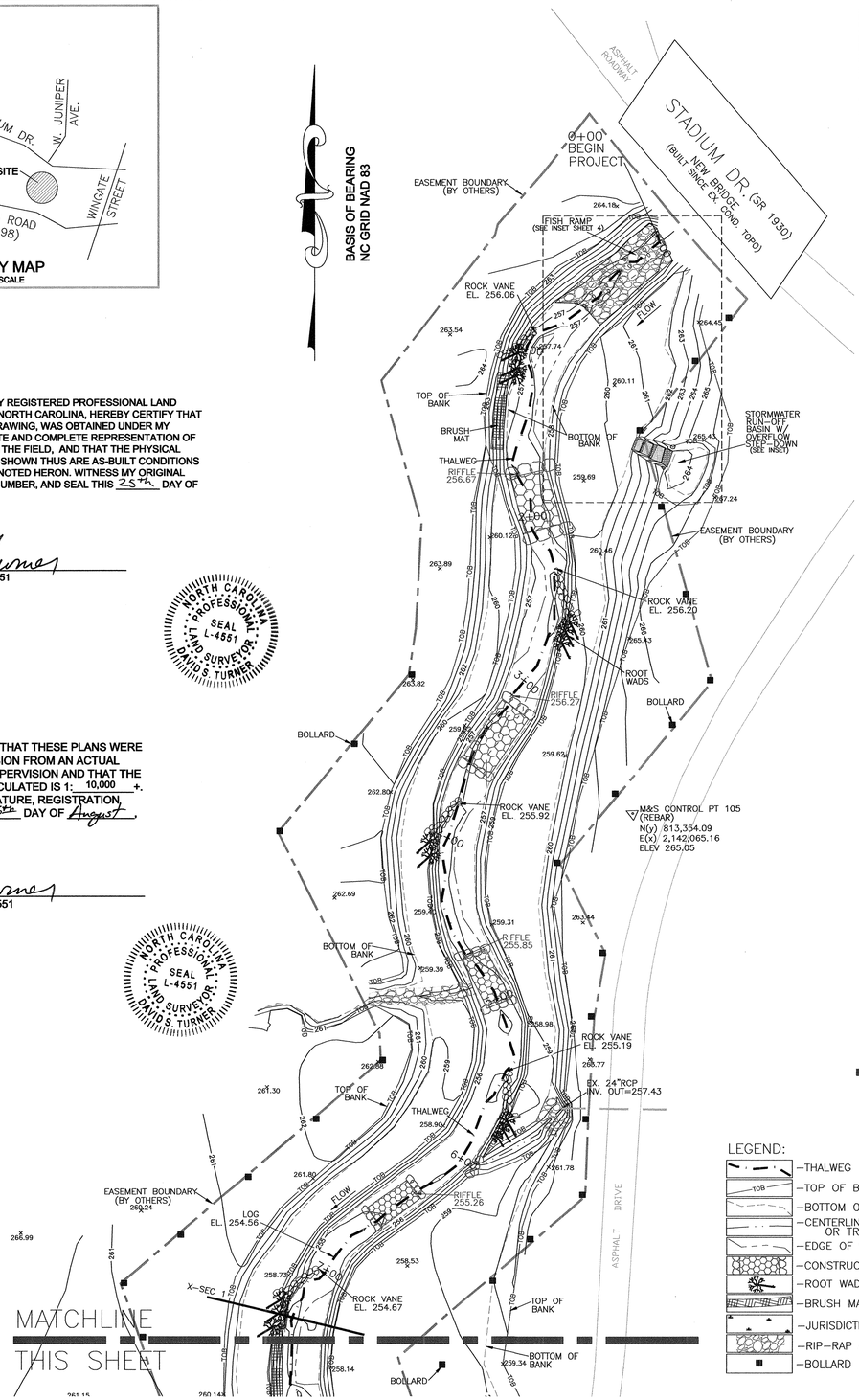
David S. Turner
DAVID S. TURNER, P.L.S. #L-4551

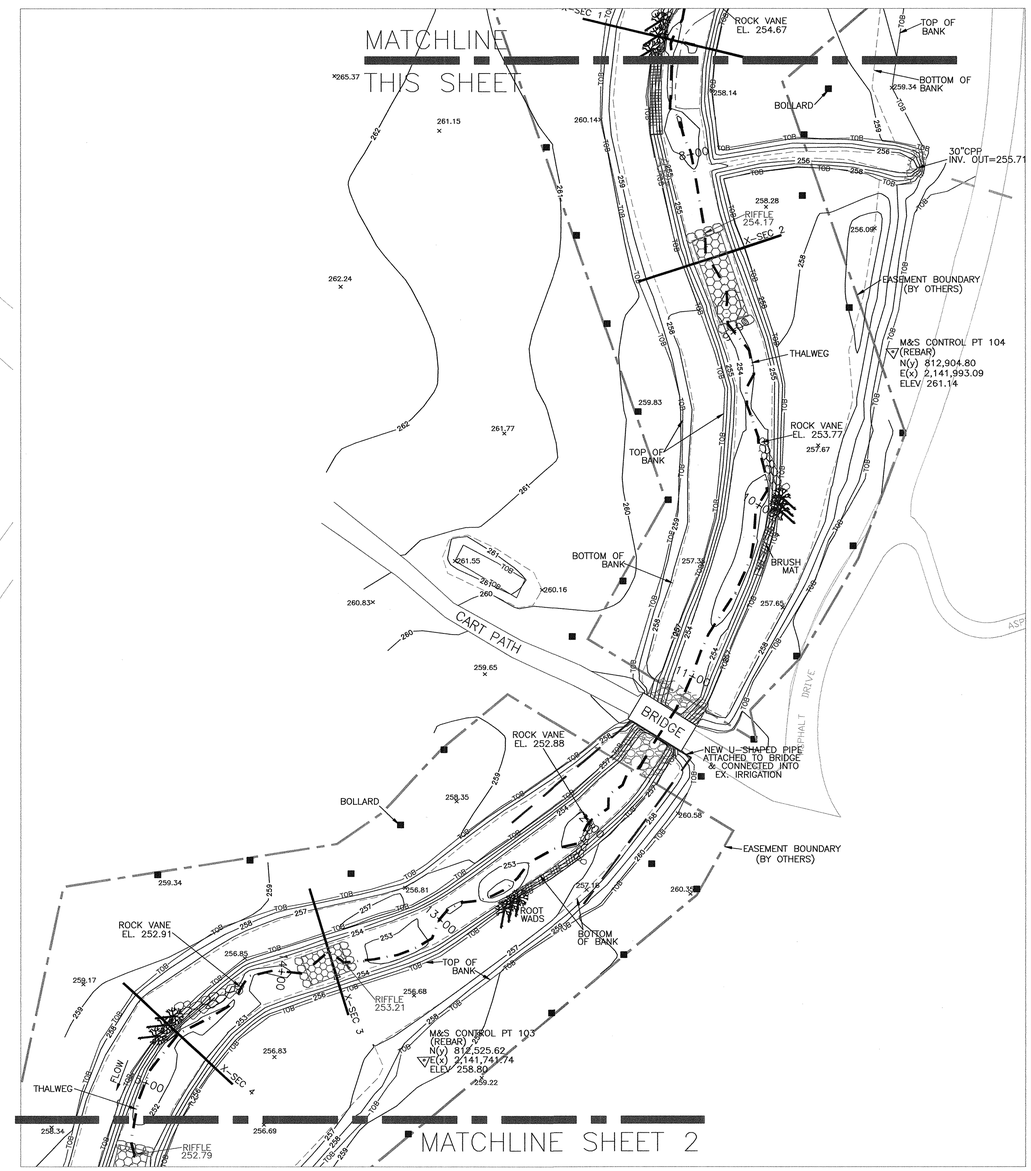
NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER

I, DAVID S. TURNER, CERTIFY THAT THESE PLANS WERE DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION AND THAT THE RATIO OF PRECISION AS CALCULATED IS 1: 10,000 +. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS 25TH DAY OF August, 2010.

David S. Turner
DAVID S. TURNER, P.L.S. #L-4551

NORTH CAROLINA PROFESSIONAL SEAL L-4551 LAND SURVEYOR DAVID S. TURNER





LEGEND:

- THALWEG
- TOP OF BANK
- BOTTOM OF BANK
- CENTERLINE OF DITCH OR TRIBUTARY
- EDGE OF WATER
- CONSTRUCTED RIFFLE
- ROOT WAD
- BRUSH MAT
- JURISDICTIONAL WETLAND
- RIP-RAP ARMOR
- BOLLARD

SHEET INDEX

SHEET 1-VICINITY MAP, GENERAL NOTES, SIGNATURES, & PLAN VIEW STA. 0+00-15+00
SHEET 2-PLAN VIEW STA. 15+00-29+80
SHEET 3-LONGITUDINAL PROFILE
SHEET 4-FISH RAMP INSET & REPRESENTATIVE CROSS-SECTIONS

AS-BUILT SURVEY BY:
TURNER LAND SURVEYING, PLLC
SURVEYED MAY 4-7, 2010

40' 0' 40' 80'
SCALE 1"=40'
1' CONTOUR INTERVAL

GENERAL NOTES

1. ALL DISTANCES ARE HORIZONTAL UNLESS OTHERWISE NOTED.
2. THE VERTICAL DATUM IS BASED ON THE NCGS BENCHMARK "WK 13" ELEVATION = 79.381m or 260.44 ftUS (NGVD29) LOCATED ON THE UPSTREAM END OF THE CULVERT ON NC98.
3. THE BASIS OF BEARINGS IS NCGS STATE PLANE GRID COORDINATES NAD83 DATUM.
4. CONTROL DATA SHOWN TAKEN FROM EXISTING CONDITIONS SURVEY BY MURPHY & SACKS LAND SURVEYORS AND PROVIDED BY ECOLOGIC ASSOCIATES, PA.
5. THIS MAP IS NOT FOR RECORDATION, SALES, OR CONVEYANCES AND DOES NOT COMPLY WITH G.S. 47-30 MAPPING REQUIREMENTS.
6. SEE SHEET 3 FOR LONGITUDINAL PROFILE DATA.
7. SEE SHEET 4 FOR REPRESENTATIVE CROSS-SECTIONS AND FISH RAMP INSET.

REFERENCES:

OWNER:
NORTH CAROLINA ECOSYSTEM ENHANCEMENT PROGRAM
1652 MAIL SERVICE CENTER
RALEIGH, NC 27099-1652
(919)715-0476
SCO#: 020591101

CONTRACTOR:
RIVER WORKS, INC.
CARY, NC
(919)459-9001

DESIGNER:
ECOLOGIC ASSOCIATES, PA
GREENSBORO, NC
(336)632-4441
EXISITING CONDITIONS & CONTROL INFORMATION PROVIDED BY ECOLOGIC

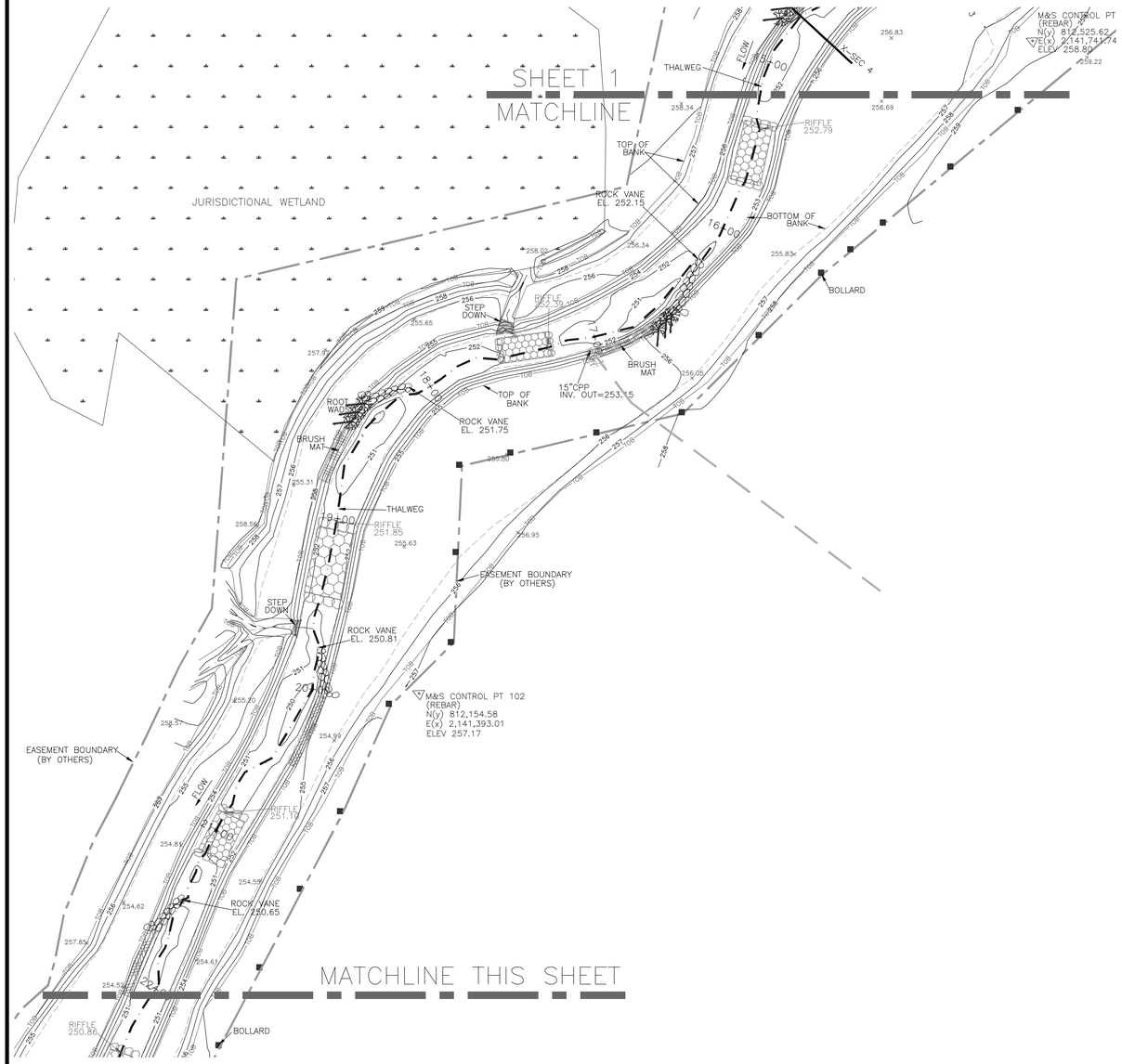
REVISIONS, DATE AND INITIAL:

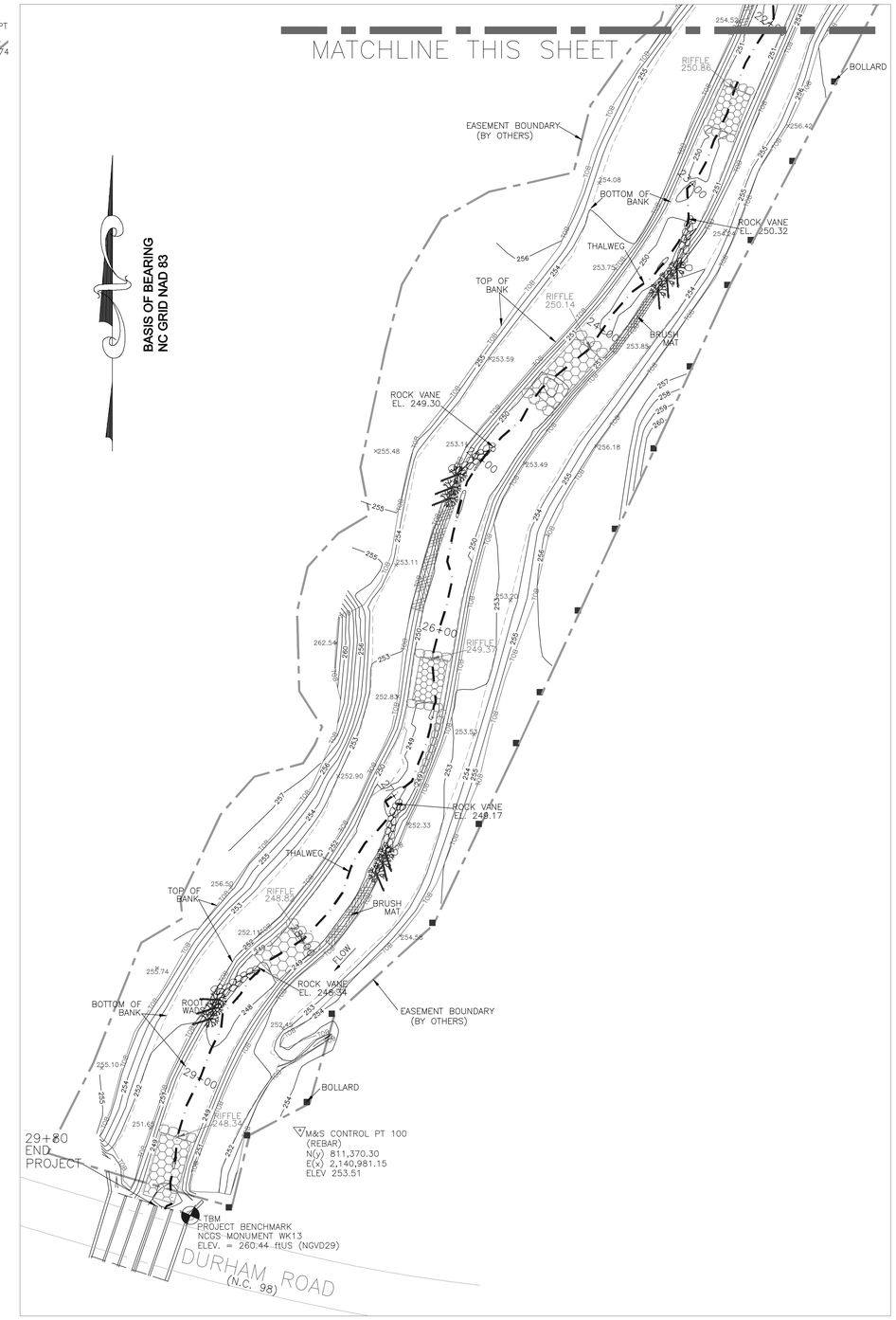
TURNER LAND SURVEYING, PLLC
3201 Glenridge Drive, Raleigh, NC 27604 -- (919)875-1378
Lturner921@nc.rr.com -- Dturner119@nc.rr.com
www.TURNERLANDSURVEYING.com

AS-BUILT SURVEY OF RICHLAND CREEK STREAM RESTORATION SCO# 020591101

WAKE FOREST — WAKE COUNTY — NORTH CAROLINA

DATE:	06/01/2010
SURVEYED BY:	DST/EGT
DRAWN BY:	EGT
REVIEWED BY:	DST/EGT
PROJECT:	TLS-09-008
FILE:	RICHLAND CREEK FINAL AS-BUILT 081510.DWG
SCALE:	1" = 40'
SHEET	1 of 4





LEGEND:

- THALWEG
- TOP OF BANK
- BOTTOM OF BANK
- CENTERLINE OF DITCH OR TRIBUTARY
- EDGE OF WATER
- CONSTRUCTED RIFFLE
- ROOT WAD
- BRUSH MAT
- JURISDICTIONAL WETLAND
- RIP-RAP ARMOR
- BOLLARD

AS-BUILT SURVEY BY:
TURNER LAND SURVEYING, PLLC
SURVEYED MAY 4-7, 2010

40' 0' 40' 80'

SCALE 1"=40'
1' CONTOUR INTERVAL

NOTES:

1. SEE SHEET 1 FOR GENERAL NOTES.
2. FOUR (4) PAGE DOCUMENT IS NOT VALID WITHOUT SHEET 1.

REVISIONS, DATE AND INITIAL:

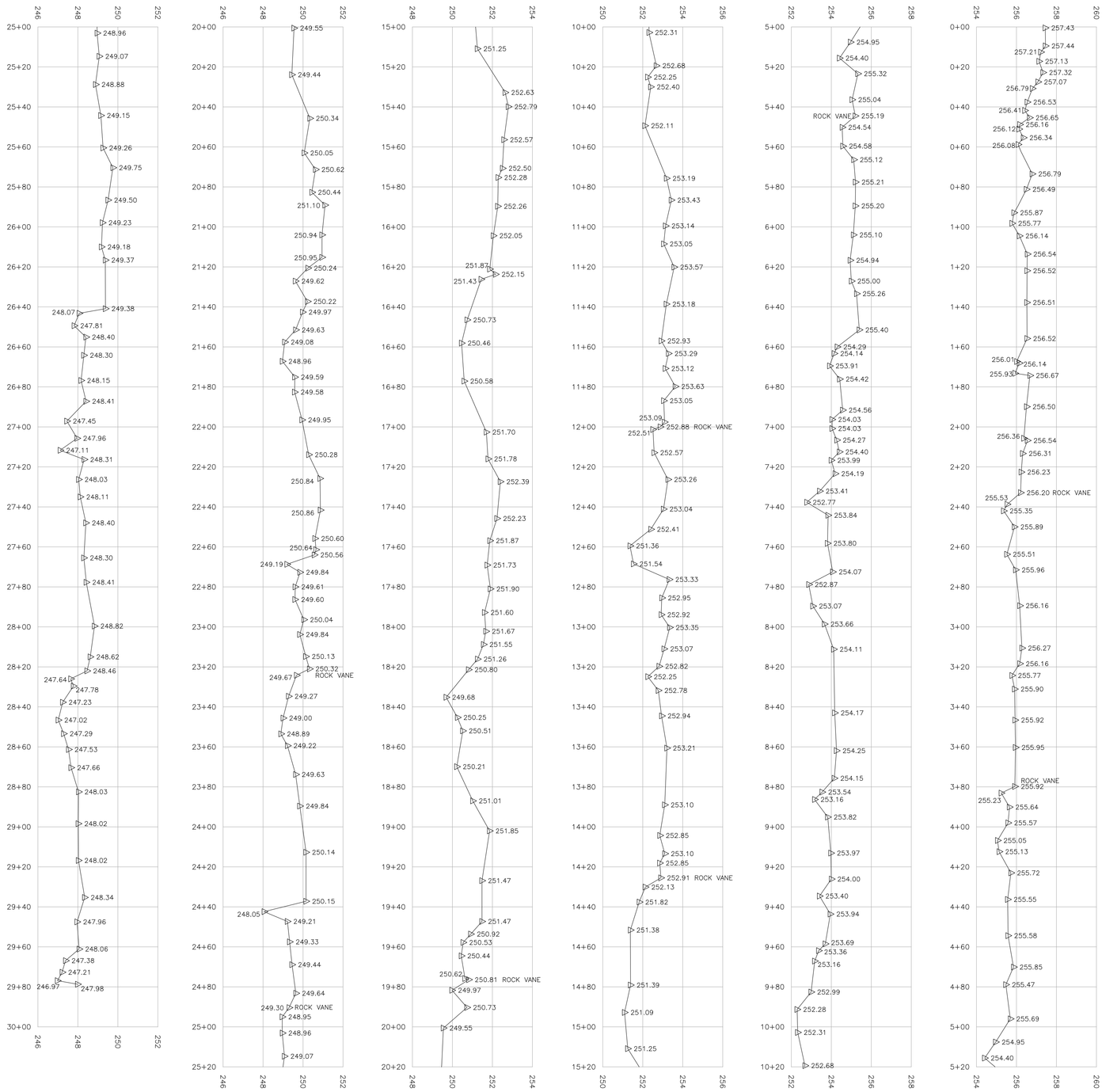
TURNER LAND SURVEYING, PLLC
3201 Glenridge Drive, Raleigh, NC 27604 – (919)875-1378
Ltumer921@nc.rr.com – Dtumer119@nc.rr.com
www.TURNERLANDSURVEYING.com

AS-BUILT SURVEY OF RICHLAND CREEK STREAM RESTORATION SCO# 020591101

WAKE FOREST — WAKE COUNTY — NORTH CAROLINA

DATE:	06/01/2010
SURVEYED BY:	DST/EGT
DRAWN BY:	EGT
REVIEWED BY:	DST/EGT
PROJECT:	TLS-09-008
FILE:	RICHLAND CREEK FINAL AS-BUILT 081510.DWG
SCALE:	1" = 40'

SHEET 2 of 4



LONGITUDINAL PROFILE
HORIZONTAL 1" = 30'
VERTICAL 1" = 3'

NOTES:
1. SEE SHEET 1 FOR GENERAL NOTES.
2. FOUR (4) PAGE DOCUMENT IS NOT VALID WITHOUT SHEET 1.

AS-BUILT SURVEY BY:
TURNER LAND SURVEYING, PLLC
SURVEYED MAY 4-7, 2010

SHEET	3 of 4
SCALE:	AS SHOWN
FILE:	RICHLAND CREEK FINAL AS-BUILT 081510.DWG
PROJECT:	TLS-09-008
REVIEWED BY:	DST/EGT
DRAWN BY:	EGT
SURVEYED BY:	DST/EGT
DATE:	06/01/2010

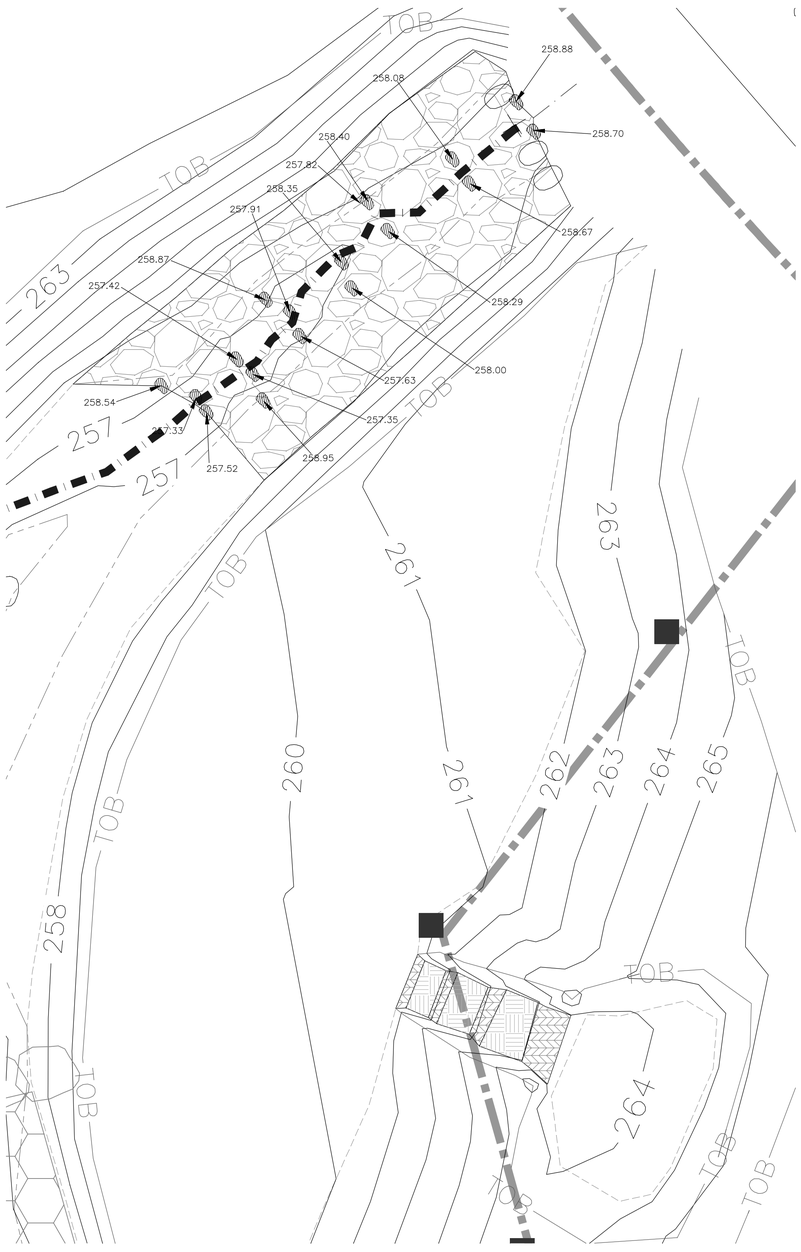
AS-BUILT SURVEY OF
RICHLAND CREEK STREAM RESTORATION
SCO# 020591101

WAKE FOREST WAKE COUNTY NORTH CAROLINA

REVISIONS, DATE AND INITIAL:

TURNER LAND SURVEYING, PLLC
3201 Glenridge Drive, Raleigh, NC 27604 – (919)875-1378
Lturner921@nc.rr.com – Dturner119@nc.rr.com
www.TURNERLANDSURVEYING.com

FISH RAMP INSET



BASIS OF BEARING
NC GRID NAD 83

AS-BUILT SURVEY BY:
TURNER LAND SURVEYING, PLLC
SURVEYED MAY 4-7, 2010

10' 0' 10' 20'

SCALE 1"=10'
1' CONTOUR INTERVAL

LEGEND:

- THALWEG
- TOP OF BANK
- BOTTOM OF BANK
- CENTERLINE OF DITCH OR TRIBUTARY
- EDGE OF WATER
- CONSTRUCTED RIFFLE
- ROOT WAD
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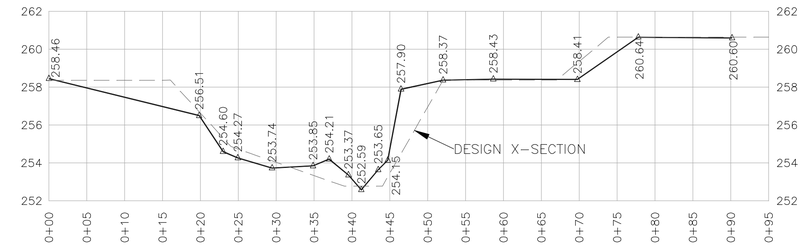
- JURISDICTIONAL WETLAND
- RIP-RAP ARMOR
- BOLLARD

NOTES:

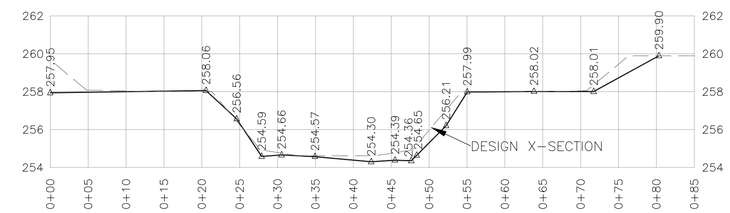
1. SEE SHEET 1 FOR GENERAL NOTES.
2. FOUR (4) PAGE DOCUMENT IS NOT VALID WITHOUT SHEET 1.

REPRESENTATIVE CROSS-SECTIONS

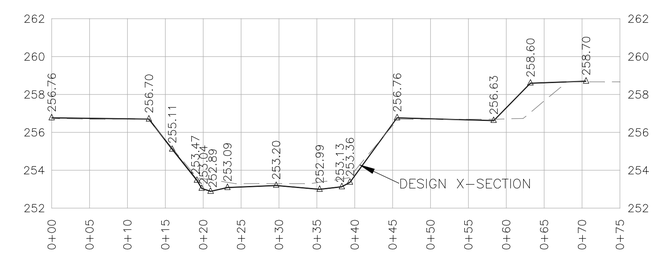
HORIZONTAL 1"=10'
VERTICAL 1"=4'



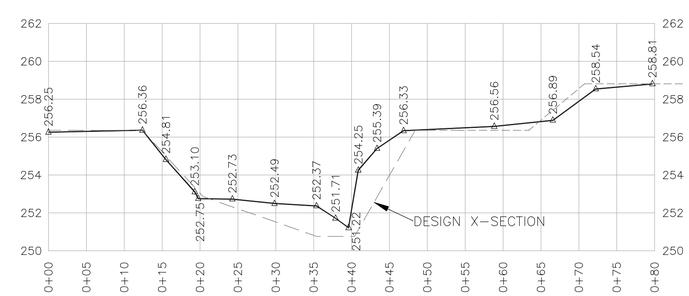
X-SEC 1
POOL 7+15



X-SEC 2
RIFFLE 8+30



X-SEC 3
RIFFLE 13+20



X-SEC 4
POOL 14+15

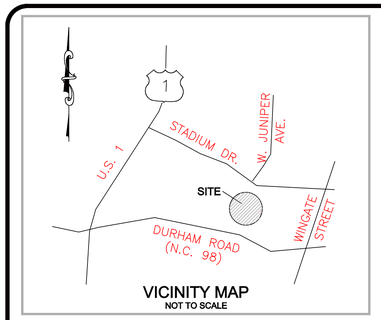
REVISIONS, DATE AND INITIAL:

TURNER LAND SURVEYING, PLLC
3201 Glenridge Drive, Raleigh, NC 27604 – (919)875-1378
Ltumer921@nc.rr.com – Dtumer119@nc.rr.com
www.TURNERLANDSURVEYING.com

AS-BUILT SURVEY OF RICHLAND CREEK STREAM RESTORATION SCO# 020591101

WAKE FOREST — WAKE COUNTY — NORTH CAROLINA

DATE:	06/01/2010
SURVEYED BY:	DST/EGT
DRAWN BY:	EGT
REVIEWED BY:	DST/EGT
PROJECT:	TLS-09-008
FILE:	RICHLAND CREEK FINAL AS-BUILT 081510.DWG
SCALE:	AS SHOWN



VICINITY MAP
NOT TO SCALE

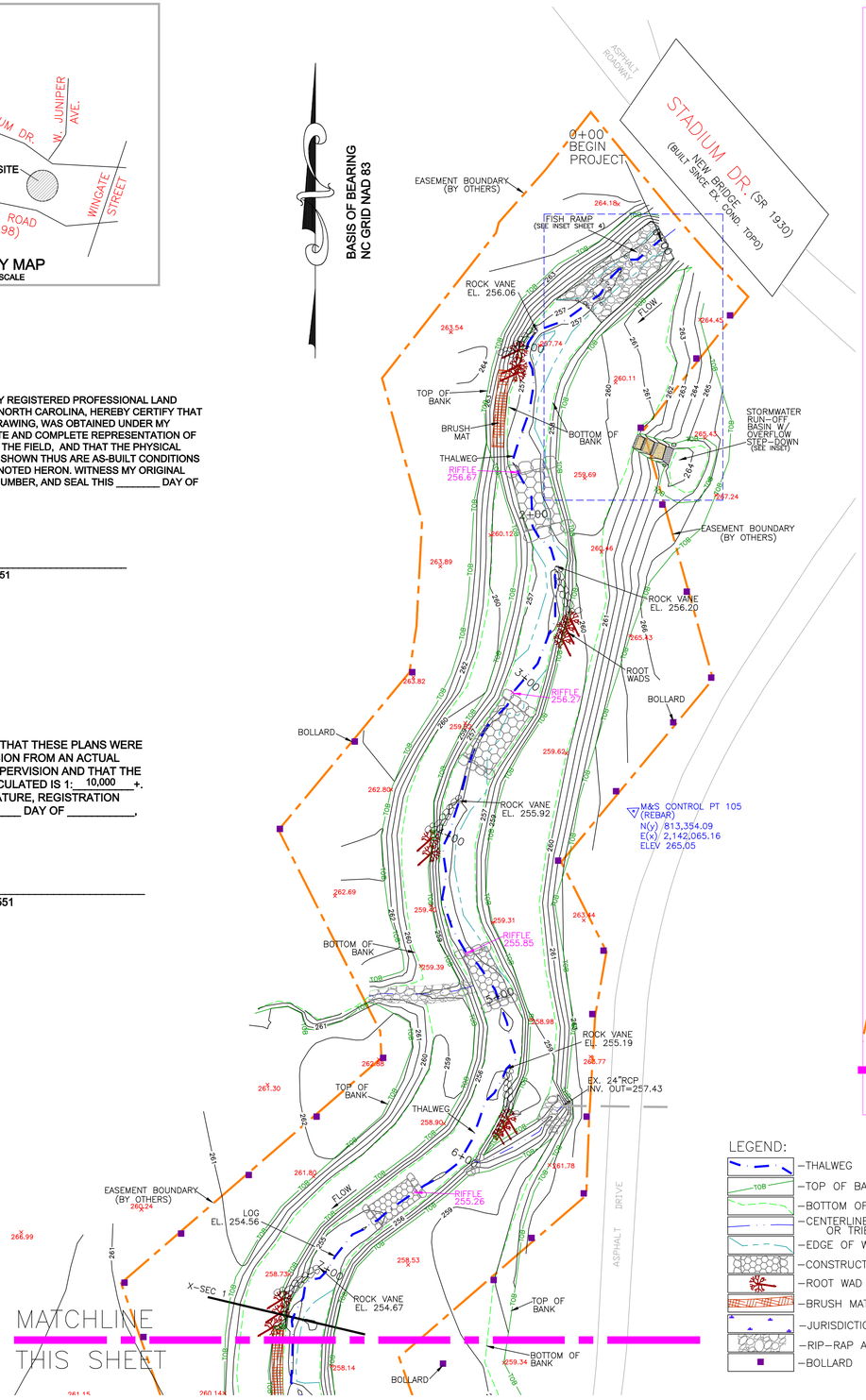
BASIS OF BEARING
NC GRID NAD 83

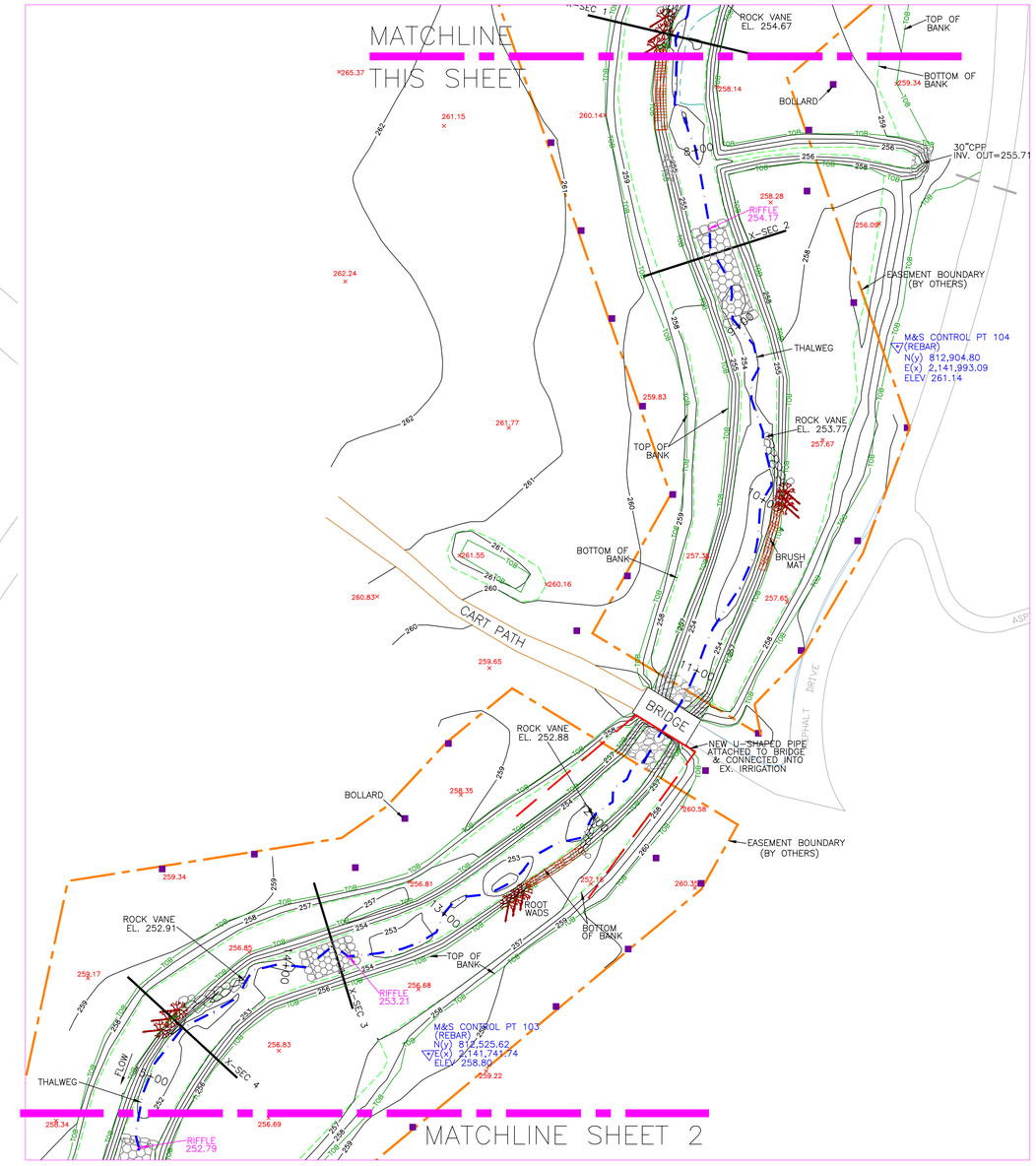
I, DAVID S. TURNER, AS A DULY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF NORTH CAROLINA, HEREBY CERTIFY THAT THE DATA SHOWN ON THIS DRAWING, WAS OBTAINED UNDER MY SUPERVISION, IS AN ACCURATE AND COMPLETE REPRESENTATION OF WHAT WAS CONSTRUCTED IN THE FIELD, AND THAT THE PHYSICAL DIMENSIONS OR ELEVATIONS SHOWN THUS ARE AS-BUILT CONDITIONS EXCEPT WHERE OTHERWISE NOTED HERON. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS _____ DAY OF _____, 2010.

DAVID S. TURNER, P.L.S. #L-4551

I, DAVID S. TURNER, CERTIFY THAT THESE PLANS WERE DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION AND THAT THE RATIO OF PRECISION AS CALCULATED IS 1:__10,000__+. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS _____ DAY OF _____, 2010.

DAVID S. TURNER, P.L.S. #L-4551





LEGEND:

- THALWEG
- TOP OF BANK
- BOTTOM OF BANK
- CENTERLINE OF DITCH OR TRIBUTARY
- EDGE OF WATER
- CONSTRUCTED RIFFLE
- ROOT WAD
- BRUSH MAT
- JURISDICTIONAL WETLAND
- RIP-RAP ARMOR
- BOLLARD

SHEET INDEX

SHEET 1-VICINITY MAP, GENERAL NOTES, SIGNATURES, & PLAN VIEW STA. 0+00-15+00
SHEET 2-PLAN VIEW STA. 15+00-29+80
SHEET 3-LONGITUDINAL PROFILE
SHEET 4-FISH RAMP INSET & REPRESENTATIVE CROSS-SECTIONS

AS-BUILT SURVEY BY:
TURNER LAND SURVEYING, PLLC
SURVEYED MAY 4-7, 2010

40' 0' 40' 80'
SCALE 1"=40'
1' CONTOUR INTERVAL

GENERAL NOTES

1. ALL DISTANCES ARE HORIZONTAL UNLESS OTHERWISE NOTED.
2. THE VERTICAL DATUM IS BASED ON THE NCGS BENCHMARK "WK 13" ELEVATION = 79.381m or 260.44 ftUS (NGVD29) LOCATED ON THE UPSTREAM END OF THE CULVERT ON NC98.
3. THE BASIS OF BEARINGS IS NCGS STATE PLANE GRID COORDINATES NAD83 DATUM.
4. CONTROL DATA SHOWN TAKEN FROM EXISTING CONDITIONS SURVEY BY MURPHY & SACKS LAND SURVEYORS AND PROVIDED BY ECOLOGIC ASSOCIATES, PA.
5. THIS MAP IS NOT FOR RECORDATION, SALES, OR CONVEYANCES AND DOES NOT COMPLY WITH G.S. 47-30 MAPPING REQUIREMENTS.
6. SEE SHEET 3 FOR LONGITUDINAL PROFILE DATA.
7. SEE SHEET 4 FOR REPRESENTATIVE CROSS-SECTIONS AND FISH RAMP INSET.

REFERENCES:

OWNER:
NORTH CAROLINA ECOSYSTEM ENHANCEMENT PROGRAM
1652 MAIL SERVICE CENTER
RALEIGH, NC 27099-1652
(919)715-0476
SCO#: 020591101

CONTRACTOR:
RIVER WORKS, INC.
CARY, NC
(919)459-9001

DESIGNER:
ECOLOGIC ASSOCIATES, PA
GREENSBORO, NC
(336)632-4441
EXISITING CONDITIONS & CONTROL INFORMATION PROVIDED BY ECOLOGIC

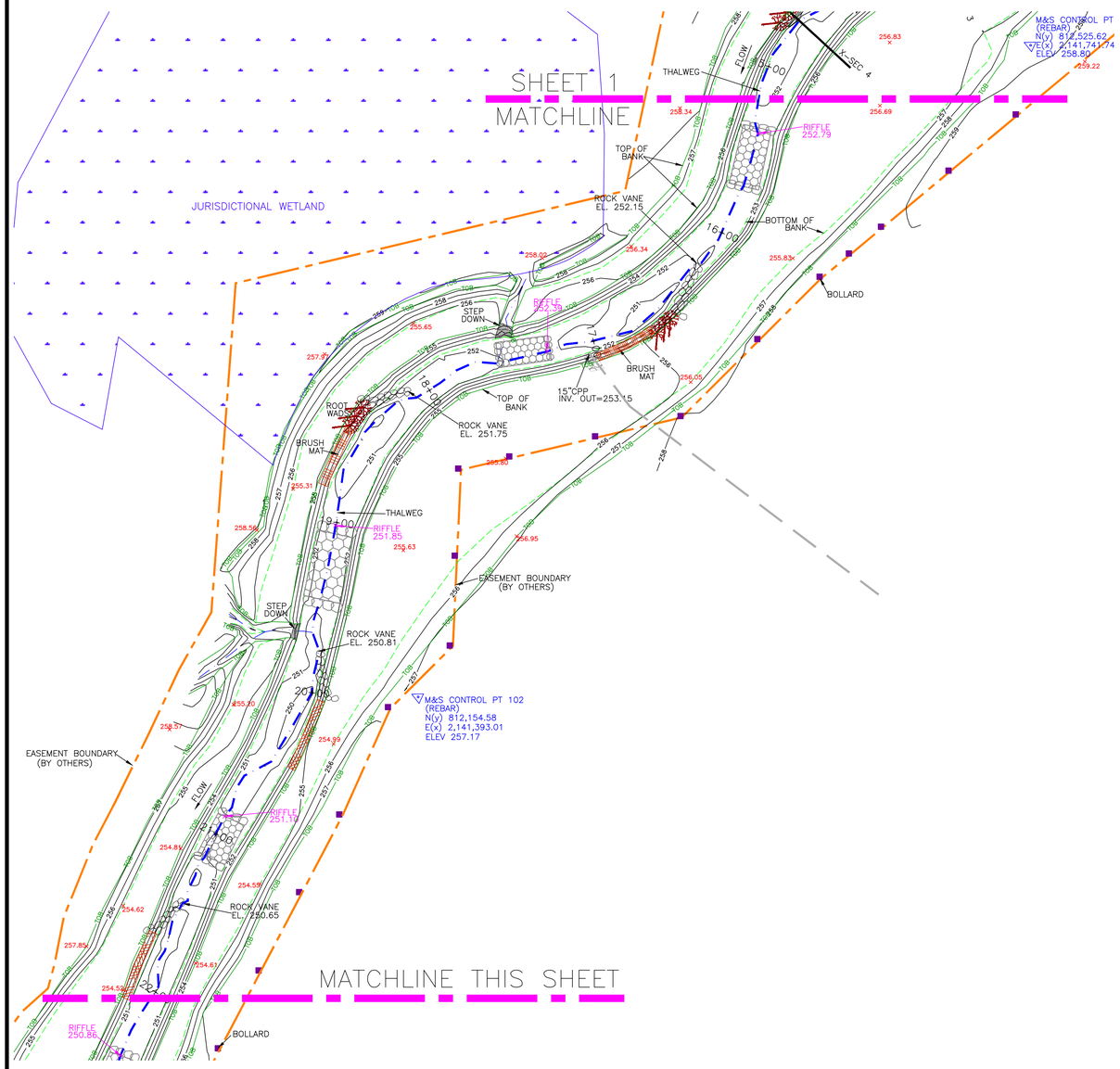
REVISIONS, DATE AND INITIAL:

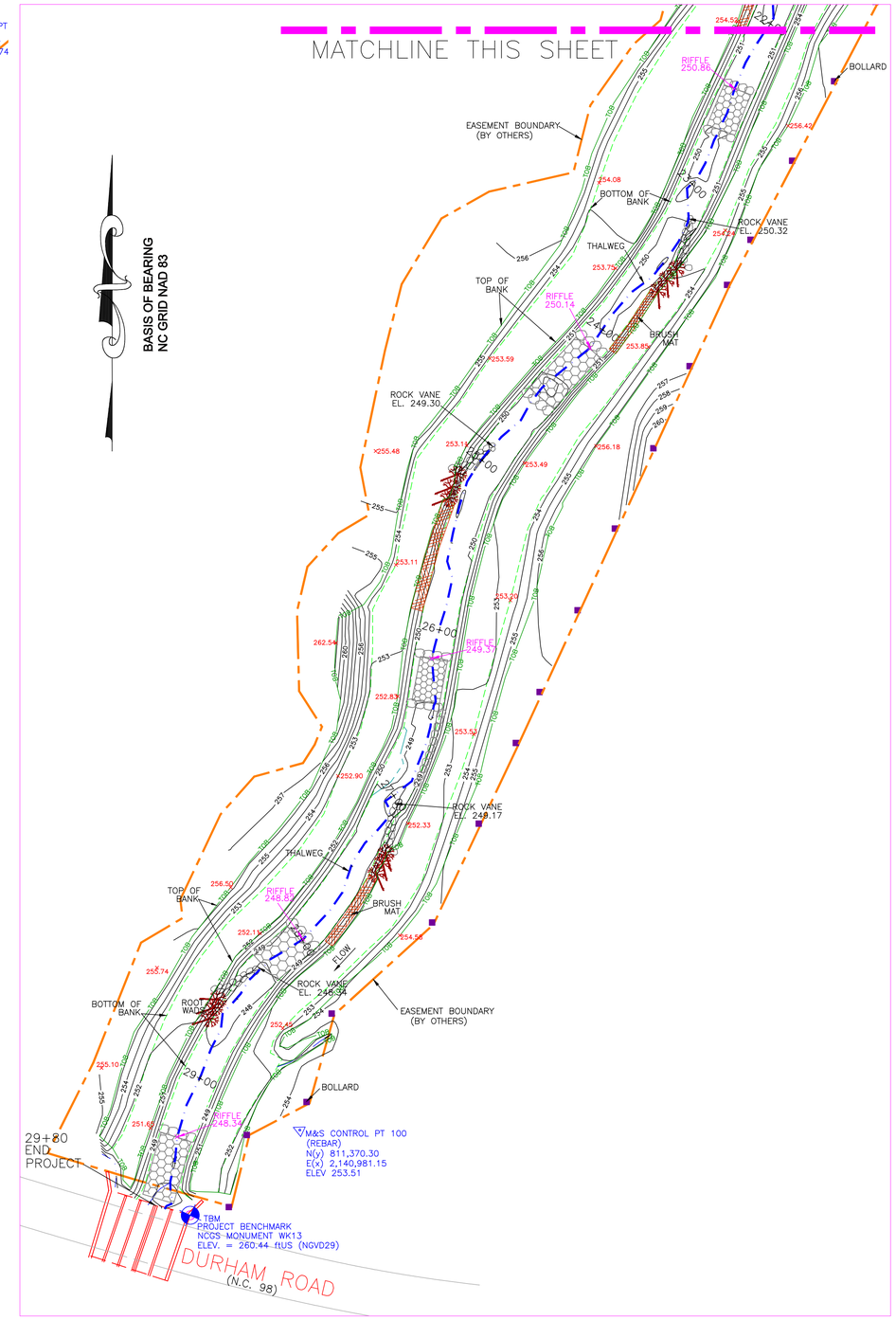
TURNER LAND SURVEYING, PLLC
3201 Glenridge Drive, Raleigh, NC 27604 – (919)875-1378
Lturner921@nc.rr.com – Dturner119@nc.rr.com
www.TURNERLANDSURVEYING.com

AS-BUILT SURVEY OF RICHLAND CREEK STREAM RESTORATION
SCO# 020591101

WAKE FOREST — WAKE COUNTY — NORTH CAROLINA

DATE:	06/01/2010
SURVEYED BY:	DST/EGT
DRAWN BY:	EGT
REVIEWED BY:	DST/EGT
PROJECT:	TLS-09-008
FILE:	RICHLAND CREEK FINAL AS-BUILT 081510.DWG
SCALE:	1" = 40'
SHEET	1 of 4





LEGEND:

- THALWEG
- TOP OF BANK
- BOTTOM OF BANK
- CENTERLINE OF DITCH OR TRIBUTARY
- EDGE OF WATER
- CONSTRUCTED RIFFLE
- ROOT WAD
- BRUSH MAT
- JURISDICTIONAL WETLAND
- RIP-RAP ARMOR
- BOLLARD

AS-BUILT SURVEY BY:
TURNER LAND SURVEYING, PLLC
SURVEYED MAY 4-7, 2010

40' 0' 40' 80'

SCALE 1"=40'
1' CONTOUR INTERVAL

NOTES:

1. SEE SHEET 1 FOR GENERAL NOTES.
2. FOUR (4) PAGE DOCUMENT IS NOT VALID WITHOUT SHEET 1.

REVISIONS, DATE AND INITIAL:

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Lturner921@nc.rr.com -- Dturner119@nc.rr.com
www.TURNERLANDSURVEYING.com

AS-BUILT SURVEY OF RICHLAND CREEK STREAM RESTORATION SCO# 020591101

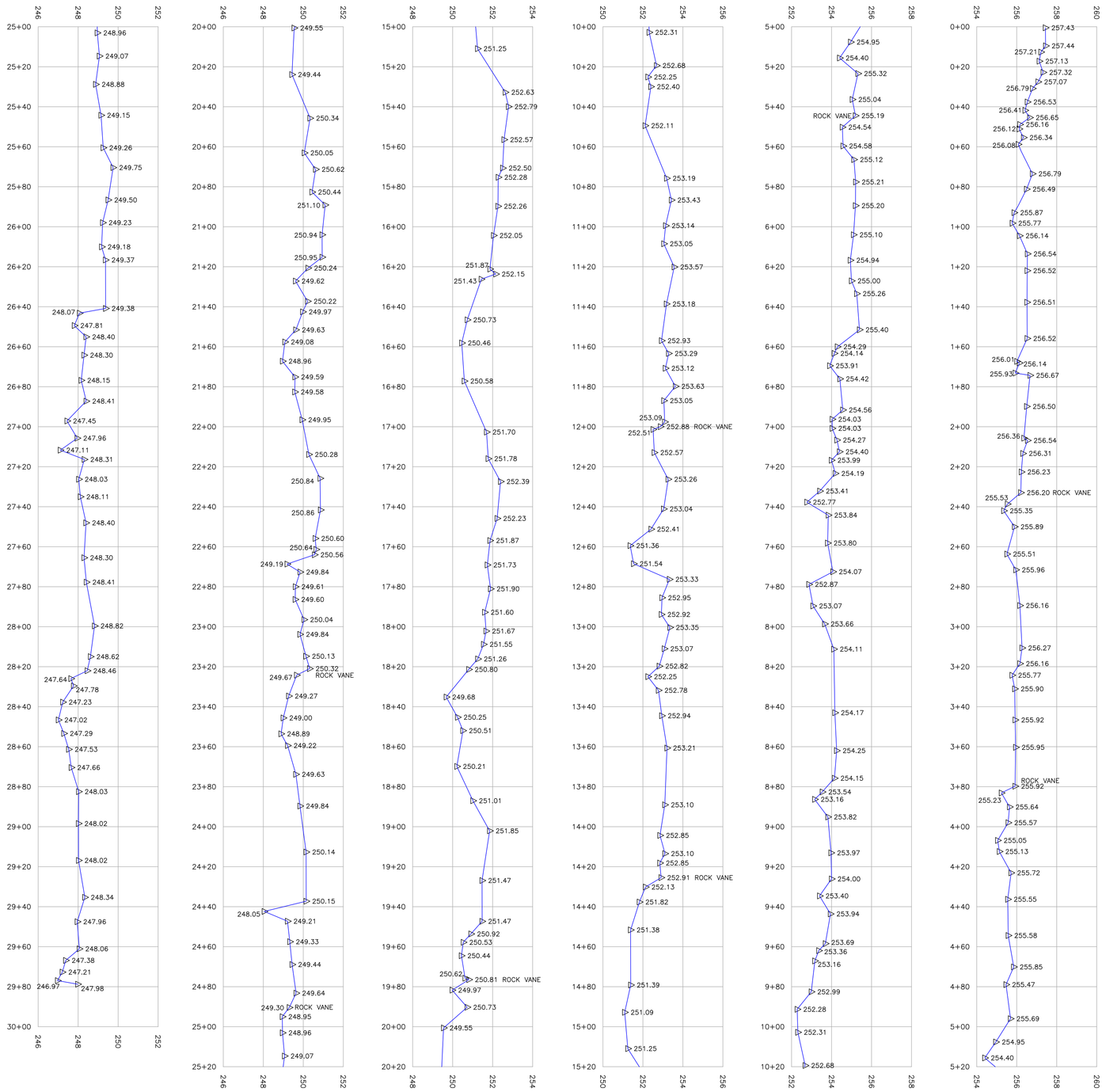
WAKE FOREST — WAKE COUNTY — NORTH CAROLINA

DATE:	06/01/2010
SURVEYED BY:	DST/EGT
DRAWN BY:	EGT
REVIEWED BY:	DST/EGT
PROJECT:	TLS-09-008
FILE:	RICHLAND CREEK FINAL AS-BUILT 081510.DWG
SCALE:	1" = 40'

SHEET 2 of 4

LONGITUDINAL PROFILE

HORIZONTAL 1"=30'
VERTICAL 1"=3'



NOTES:

1. SEE SHEET 1 FOR GENERAL NOTES.
2. FOUR (4) PAGE DOCUMENT IS NOT VALID WITHOUT SHEET 1.

AS-BUILT SURVEY BY:
TURNER LAND SURVEYING, PLLC
SURVEYED MAY 4-7, 2010

SHEET	3 of 4
SCALE:	AS SHOWN
FILE:	RICHLAND CREEK FINAL AS-BUILT 061510.DWG
PROJECT:	TLS-09-008
REVIEWED BY:	DSTEGT EGT
DRAWN BY:	DSTEGT
SURVEYED BY:	DSTEGT
DATE:	06/01/2010

AS-BUILT SURVEY OF
RICHLAND CREEK STREAM RESTORATION
SCO# 020591101

WAKE FOREST WAKE COUNTY NORTH CAROLINA

REVISIONS, DATE AND INITIAL:

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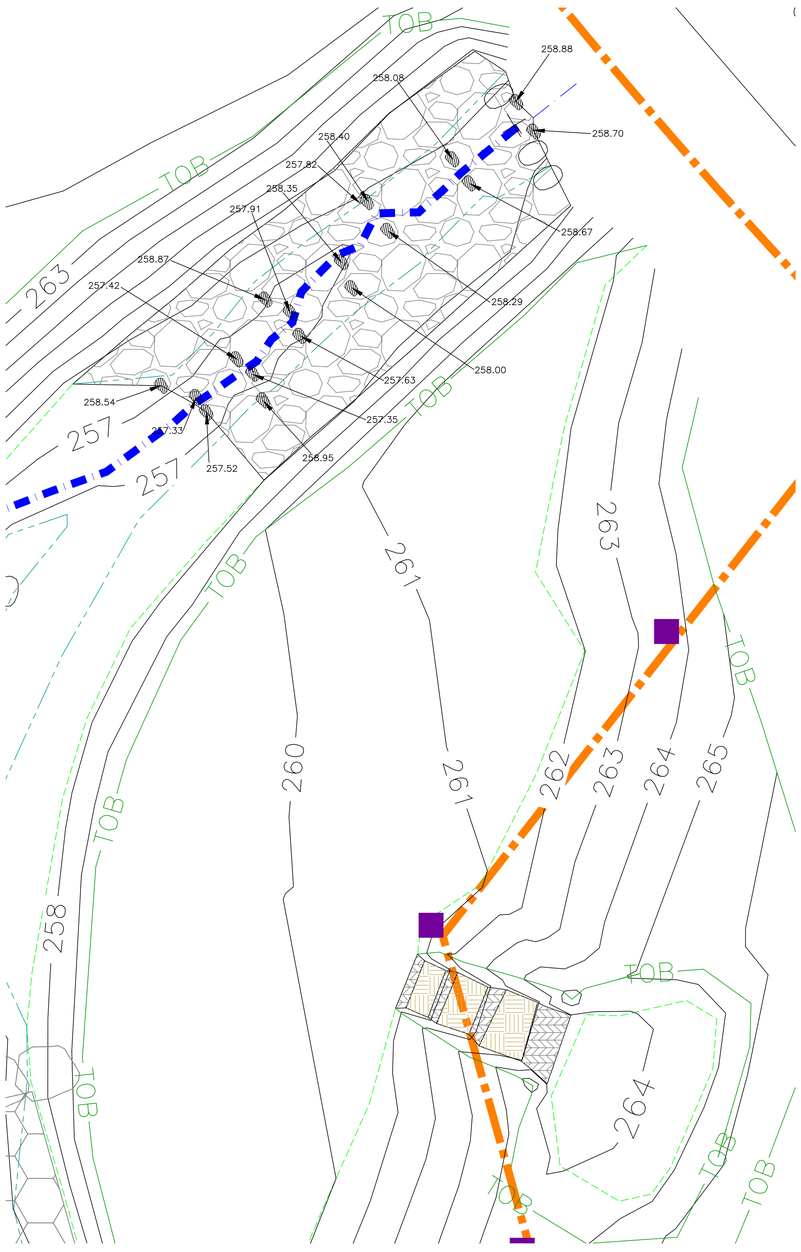
Lturner921@nc.rr.com – Dturner119@nc.rr.com
www.TURNERLANDSURVEYING.com

FISH RAMP INSET



BASIS OF BEARING
NC GRID NAD 83

AS-BUILT SURVEY BY:
TURNER LAND SURVEYING, PLLC
SURVEYED MAY 4-7, 2010

10' 0' 10' 20'

SCALE 1"=10'
1' CONTOUR INTERVAL

LEGEND:

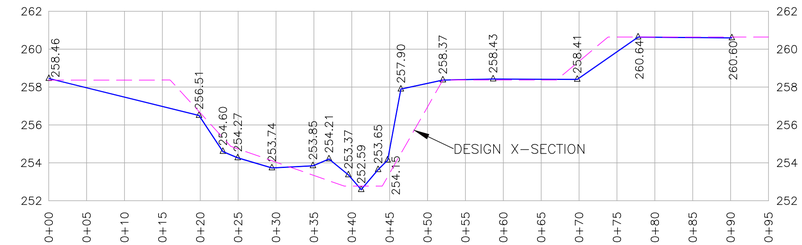
- THALWEG
- TOP OF BANK
- BOTTOM OF BANK
- CENTERLINE OF DITCH OR TRIBUTARY
- EDGE OF WATER
- CONSTRUCTED RIFFLE
- ROOT WAD
- BRUSH MAT
- JURISDICTIONAL WETLAND
- RIP-RAP ARMOR
- BOLLARD

NOTES:

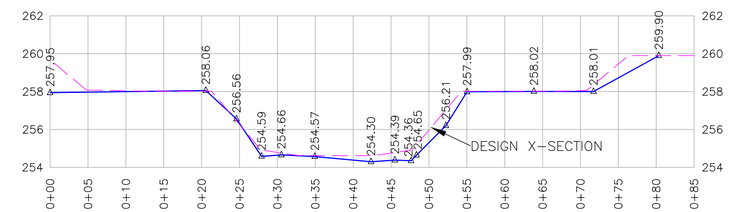
1. SEE SHEET 1 FOR GENERAL NOTES.
2. FOUR (4) PAGE DOCUMENT IS NOT VALID WITHOUT SHEET 1.

REPRESENTATIVE CROSS-SECTIONS

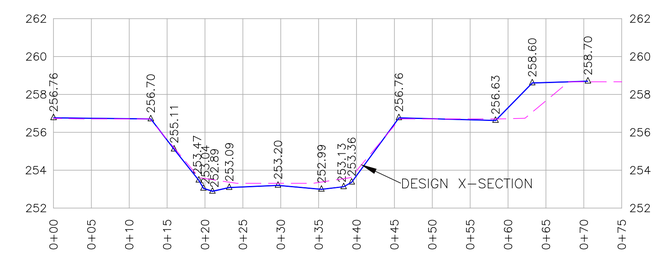
HORIZONTAL 1"=10'
VERTICAL 1"=4'



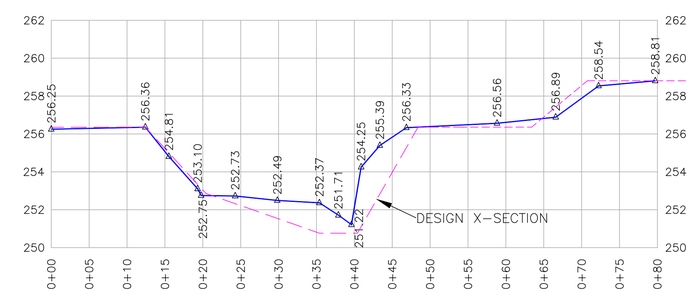
X-SEC 1
POOL 7+15



X-SEC 2
RIFFLE 8+30



X-SEC 3
RIFFLE 13+20



X-SEC 4
POOL 14+15

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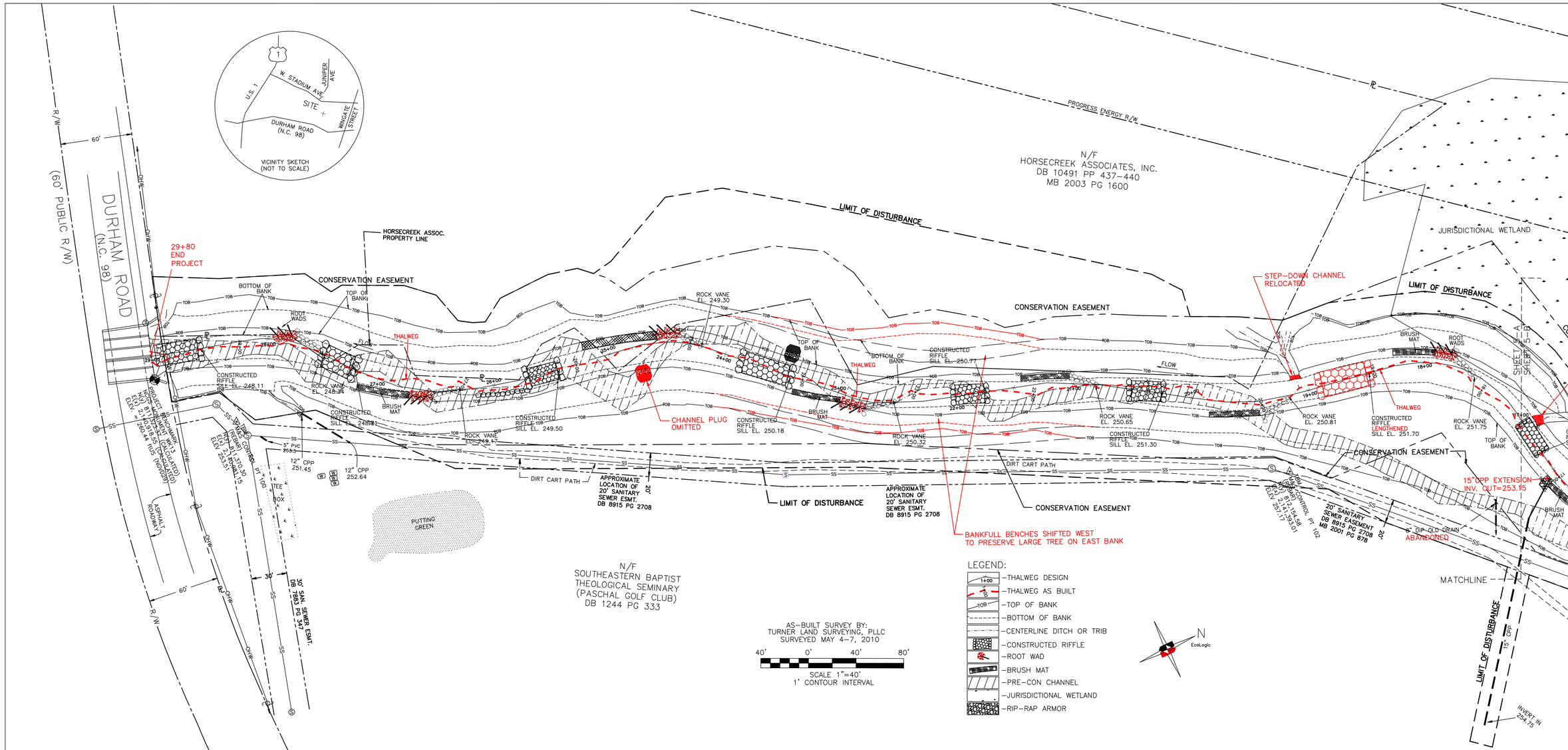
Ltumer921@nc.rr.com – Dtumer119@nc.rr.com
www.TURNERLANDSURVEYING.com

AS-BUILT SURVEY OF RICHLAND CREEK STREAM RESTORATION SCO# 020591101

WAKE FOREST — WAKE COUNTY — NORTH CAROLINA

DATE:	06/01/2010
SURVEYED BY:	DST/EGT
DRAWN BY:	EGT
REVIEWED BY:	DST/EGT
PROJECT:	TLS-09-008
FILE:	RICHLAND CREEK FINAL AS-BUILT 081510.DWG
SCALE:	AS SHOWN

SHEET 4 of 4



AS-BUILT SURVEY BY:
TURNER LAND SURVEYING, PLLC
SURVEYED MAY 4-7, 2010

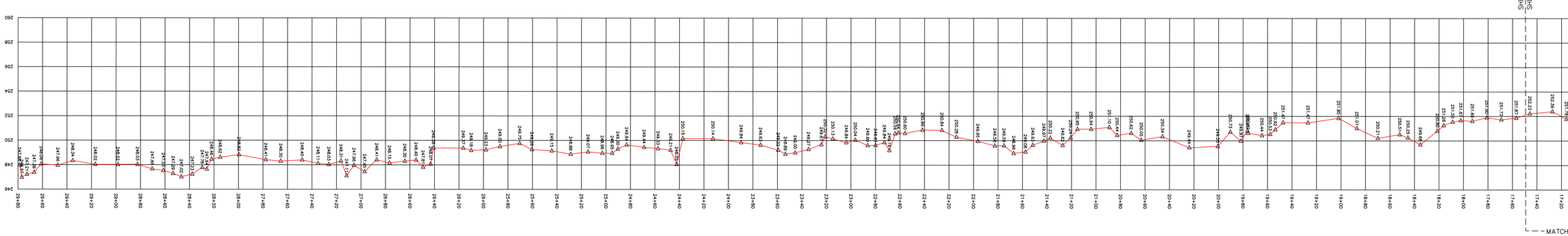
40' 0' 40' 80'

SCALE 1"=40'
1' CONTOUR INTERVAL

LEGEND:

- THALWEG DESIGN
- THALWEG AS BUILT
- TOP OF BANK
- BOTTOM OF BANK
- CENTERLINE DITCH OR TRIB
- CONSTRUCTED RIFFLE
- ROOT WAD
- BRUSH MAT
- PRE-CON CHANNEL
- JURISDICTIONAL WETLAND
- RIP-RAP ARMOR

AS-BUILT THALWEG



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FAX: 336/632-4445

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3808 CLIFTON ROAD
GREENSBORO, NC 27407

PROJECT: RICHLAND CREEK STREAM RESTORATION WAKE COUNTY, NC

PREPARED FOR: NORTH CAROLINA ECOSYSTEM ENHANCEMENT PROGRAM

NO.	DESCRIPTION	DATE

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 16975 ENGINEER MARK A. TAYLOR

RECORD DRAWING

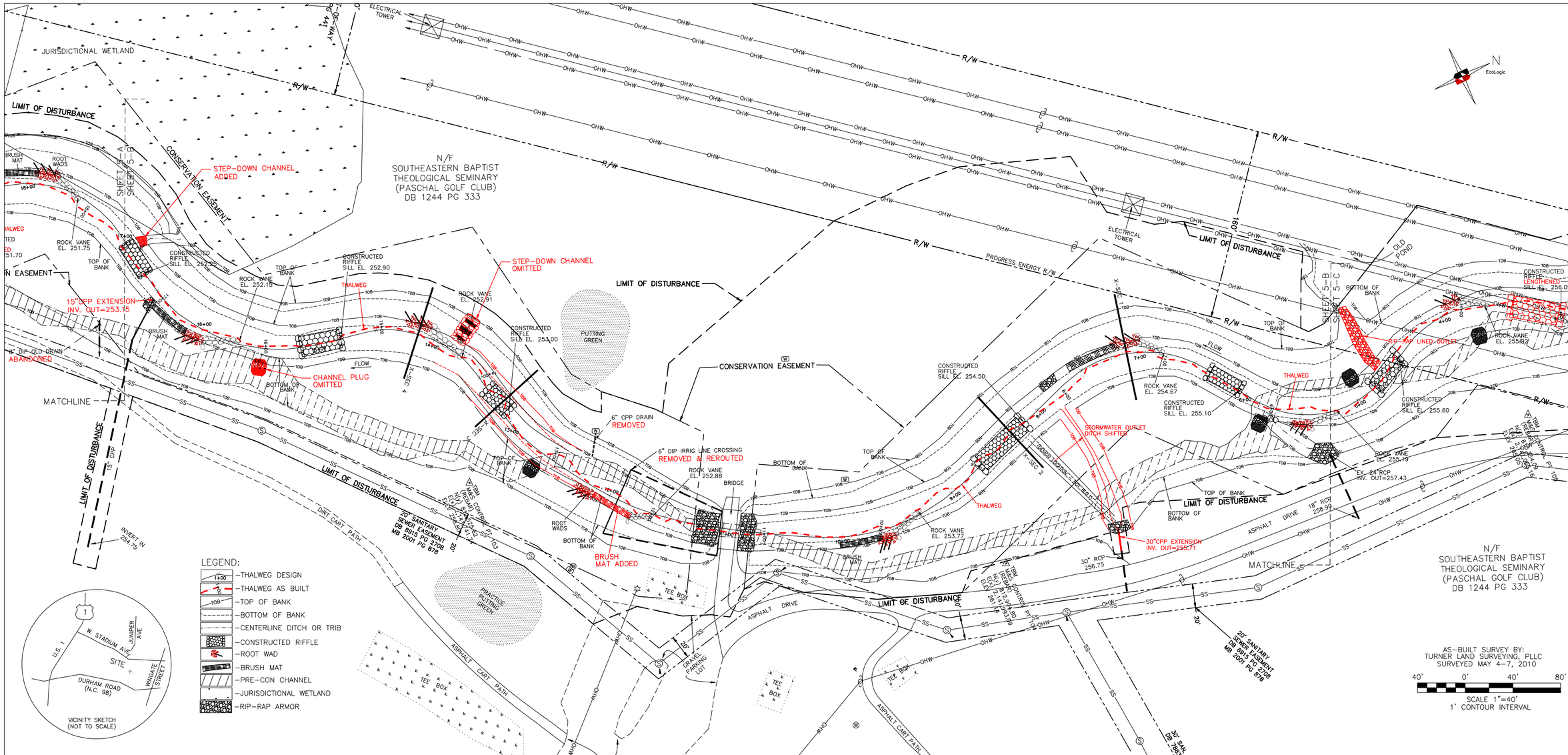
SCALE: 1"=40'
DATE: 7/28/10
DRN. BY: MAT
CHECKED BY: MAT

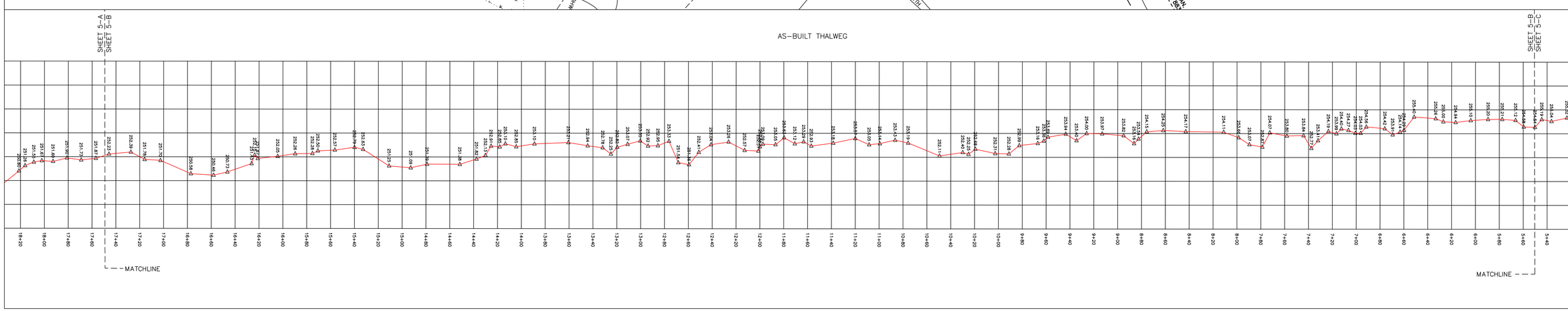
PROJECT NO: 020591101

SHEET 10 OF 15

DRAWING

5-A





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PROJECT:
RICHLAND CREEK
STREAM RESTORATION
WAKE COUNTY, NC

PREPARED FOR:
NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM

NO.	DESCRIPTION	DATE

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 10975 ENGINEER MARK A. TAYLOR

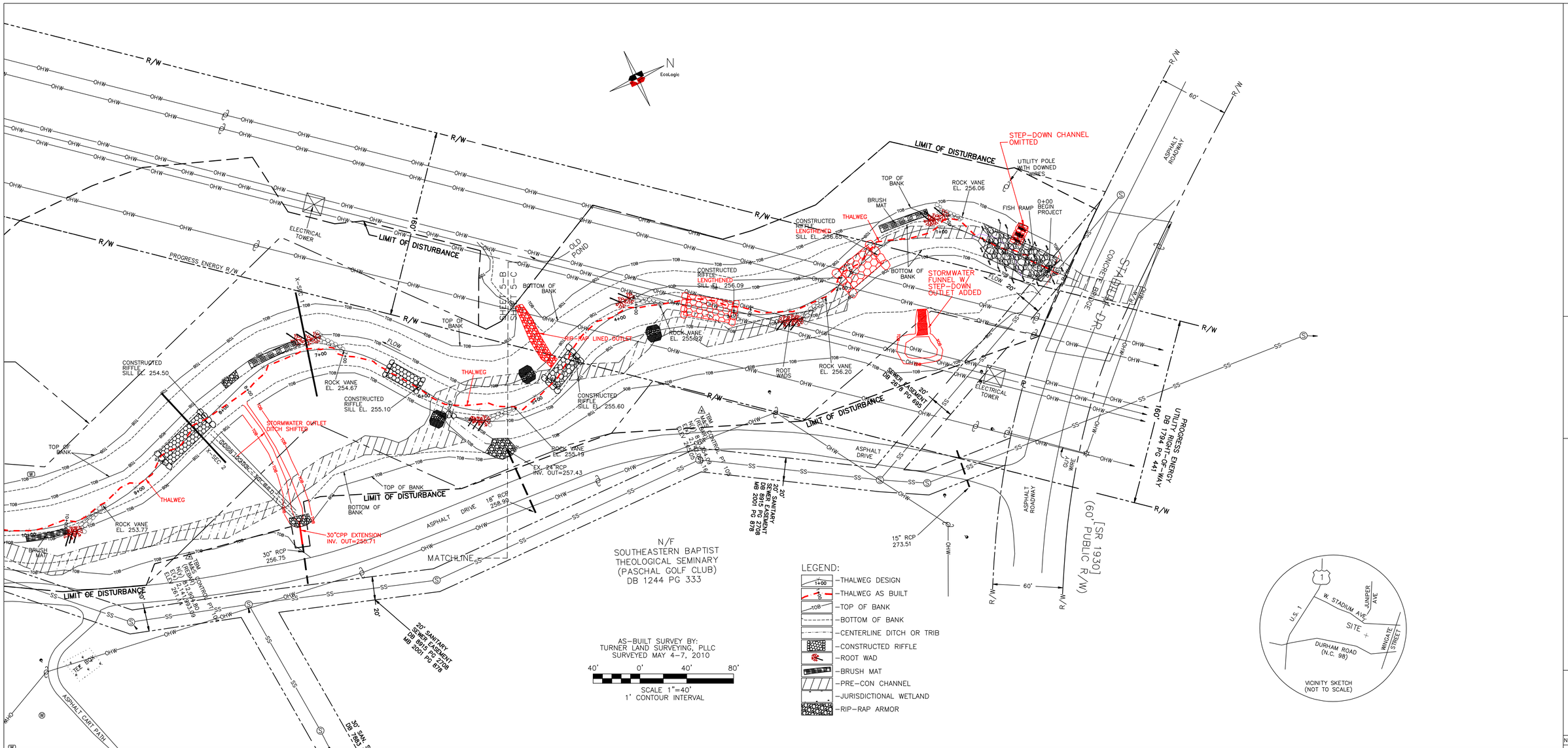
RECORD DRAWING

SCALE: 1"=40'
DATE: 7/28/10
DRN. BY: MAT
CHECKED BY: MAT

PROJECT NO:
020591101

SHEET 11 OF 15

DRAWING
5-B



LEGEND:

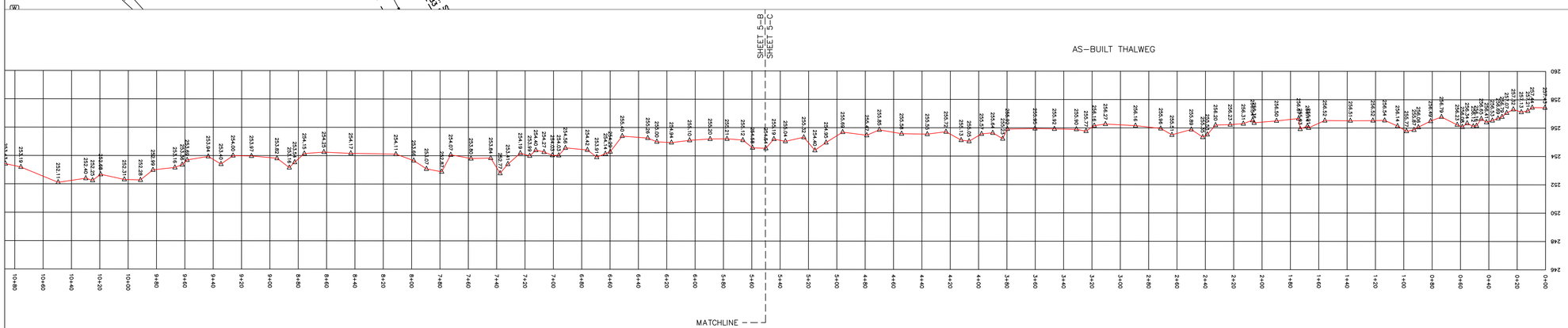
- 1+00 —THALWEG DESIGN
- 1+00 —THALWEG AS BUILT
- TOB —TOP OF BANK
- —BOTTOM OF BANK
- —CENTERLINE DITCH OR TRIB
- —CONSTRUCTED RIFFLE
- —ROOT WAD
- —BRUSH MAT
- —PRE-CON CHANNEL
- —JURISDICTIONAL WETLAND
- —RIP-RAP ARMOR

AS-BUILT SURVEY BY:
TURNER LAND SURVEYING, PLLC
SURVEYED MAY 4-7, 2010

40' 0' 40' 80'

SCALE 1"=40'
1' CONTOUR INTERVAL

VICINITY SKETCH
(NOT TO SCALE)



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RICHLAND CREEK
STREAM RESTORATION
WAKE COUNTY, NC

PREPARED FOR:
NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM

NO.	DESCRIPTION	DATE

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 10975 ENGINEER MARK A. TAYLOR

RECORD DRAWING

SCALE: 1"=40'
DATE: 7/28/10
DRN. BY: MAT
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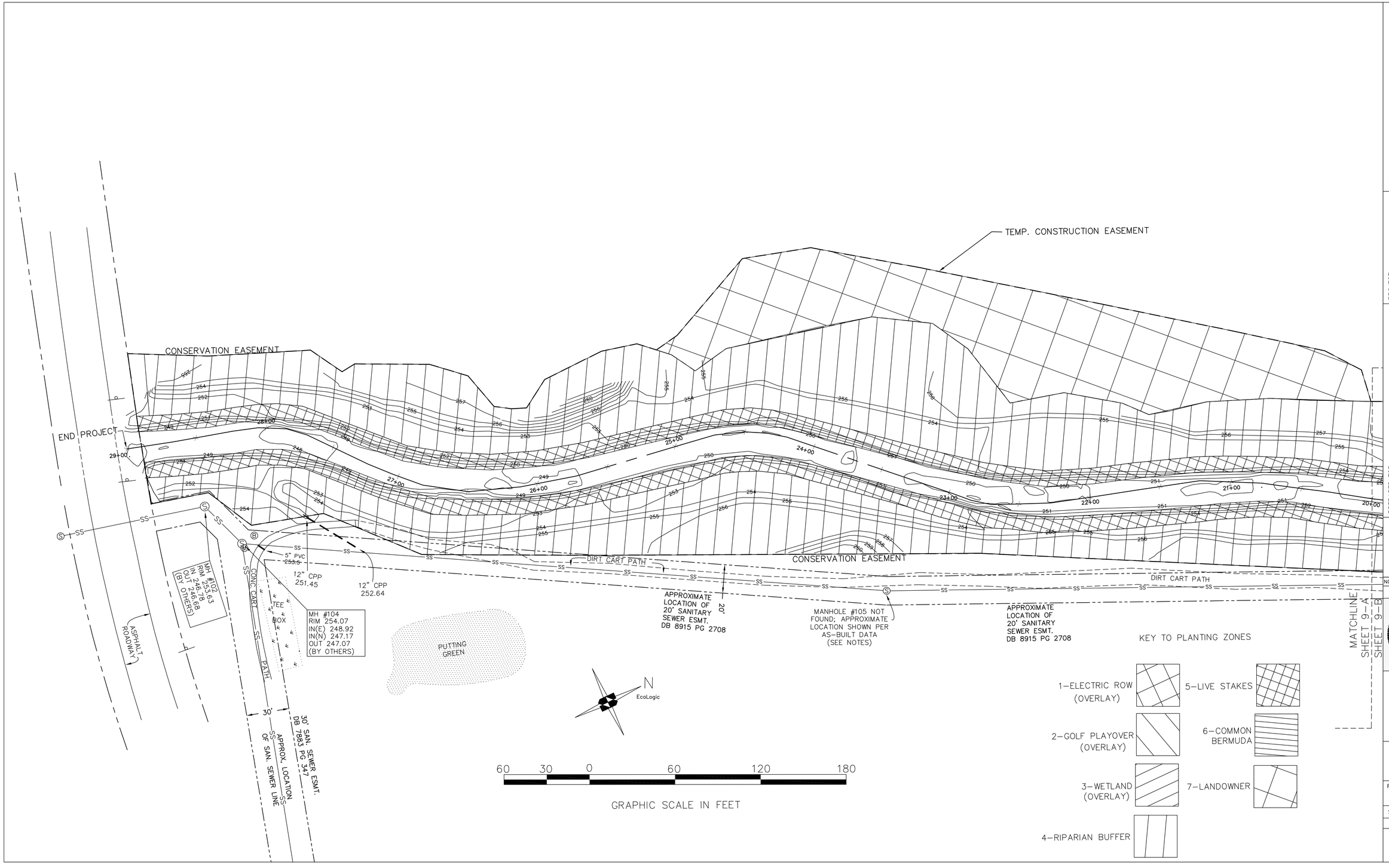
PROJECT NO:
020591101

SHEET 12 OF 15

DRAWING
5-C



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PROJECT:

RICHLAND CREEK
STREAM RESTORATION
WAKE COUNTY, NC

PREPARED FOR:

NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM

NO	DESCRIPTION	DATE

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 016975 ENGINEER MARK A. TAYLOR

AS-BUILT
PLANTING
ZONES

SCALE: 1" = 30'
DATE: 7/28/10
DRN. BY: MAT
CHECKED BY: MAT

PROJECT NO:
020591101

SHEET 13 OF 15

DRAWING

6-A

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RICHLAND CREEK STREAM RESTORATION WAKE COUNTY, NC

PREPARED FOR:
NORTH CAROLINA ECOSYSTEM ENHANCEMENT PROGRAM

NO.	DESCRIPTION	DATE

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 10975 ENGINEER MARK A. TAYLOR

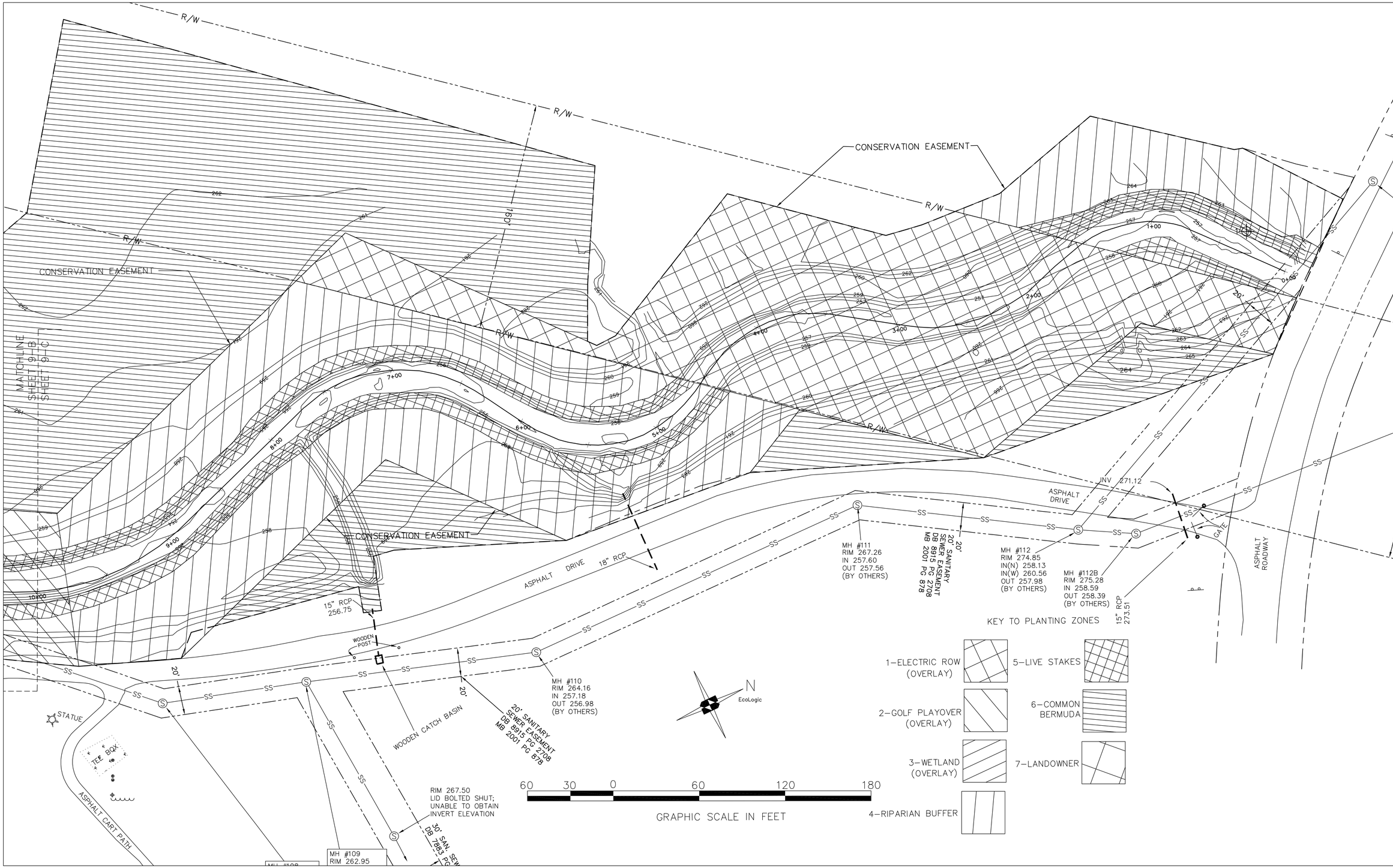
AS-BUILT PLANTING ZONES

SCALE: 1" = 30'
DATE: 7/28/10
DRN. BY: MAT
CHECKED BY: MAT

PROJECT NO:
020591101

SHEET 14 OF 15

DRAWING
6-B



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RICHLAND CREEK
STREAM RESTORATION
WAKE COUNTY, NC

PREPARED FOR:

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ECOSYSTEM ENHANCEMENT PROGRAM

NO.	DESCRIPTION	DATE

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NORTH CAROLINA PROFESSIONAL SEAL 010975 ENGINEER MARK A. TAYLOR

AS-BUILT
PLANTING
ZONES

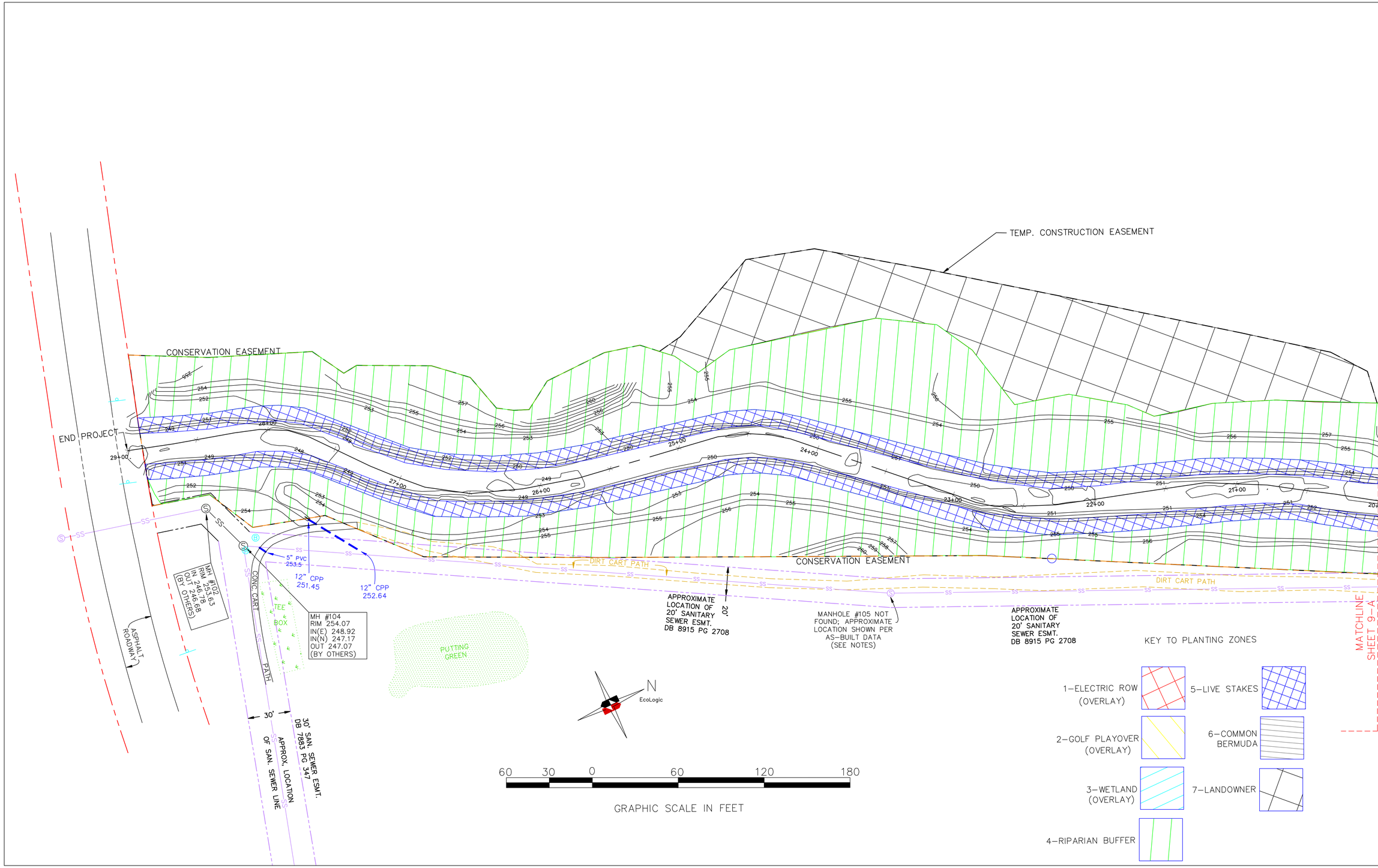
SCALE: 1" = 30'
DATE: 7/28/10
DRN. BY: MAT
CHECKED BY: MAT

PROJECT NO:
020591101

SHEET 15 OF 15

DRAWING

6-C



PREPARED FOR:

NORTH CAROLINA ECOSYSTEM ENHANCEMENT PROGRAM

PROJECT:

RICHLAND CREEK STREAM RESTORATION WAKE COUNTY, NC

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NO	DESCRIPTION	DATE

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 10975 ENGINEER MARK A. TAYLOR

AS-BUILT PLANTING ZONES

SCALE: 1" = 30'
DATE: 7/28/10
DRN. BY: MAT
CHECKED BY: MAT

PROJECT NO: 020591101

SHEET 13 OF 15

DRAWING

6-A

JURISDICTIONAL WETLAND

160'

R/W

CONSERVATION EASEMENT

RIPARIAN SEED MIX & EXTRA TREES IN THIS AREA

MATCHLINE SHEET 9-A SHEET 9-B

MH #106A
RIM 257.00
IN 248.85
OUT 248.65
(BY OTHERS)

20' SANITARY SEWER EASEMENT
DB 8915 PG 2708
MB 2001 PG 878

20'

DIRT CART PATH

15" CMP

MH #106B
RIM 257.96
IN 249.76
OUT 249.56
(BY OTHERS)

PUTTING GREEN

PRACTICE PUTTING GREEN

TEE BOX

LANDSCAPE TIMBER WALL

BRIDGE

ASPHALT DRIVE

ASPHALT CART PATH

WOODEN POST (TYPICAL)

WOODEN SHED

GRAVEL PARKING LOT

STATUE

MATCHLINE SHEET 9-B SHEET 9-C

KEY TO PLANTING ZONES

1-ELECTRIC ROW (OVERLAY)
2-GOLF PLAYOVER (OVERLAY)
3-WETLAND (OVERLAY)
4-RIPARIAN BUFFER
5-LIVE STAKES
6-COMMON BERMUDA
7-LANDOWNER

N
EcoLogic

60 30 0 60 120 180

GRAPHIC SCALE IN FEET

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GREENSBORO, NC 27407

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PROJECT:

RICHLAND CREEK
STREAM RESTORATION
WAKE COUNTY, NC

PREPARED FOR:

NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM

NO.	DESCRIPTION	DATE

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 110975 ENGINEER MARK A. TAYLOR

AS-BUILT PLANTING ZONES

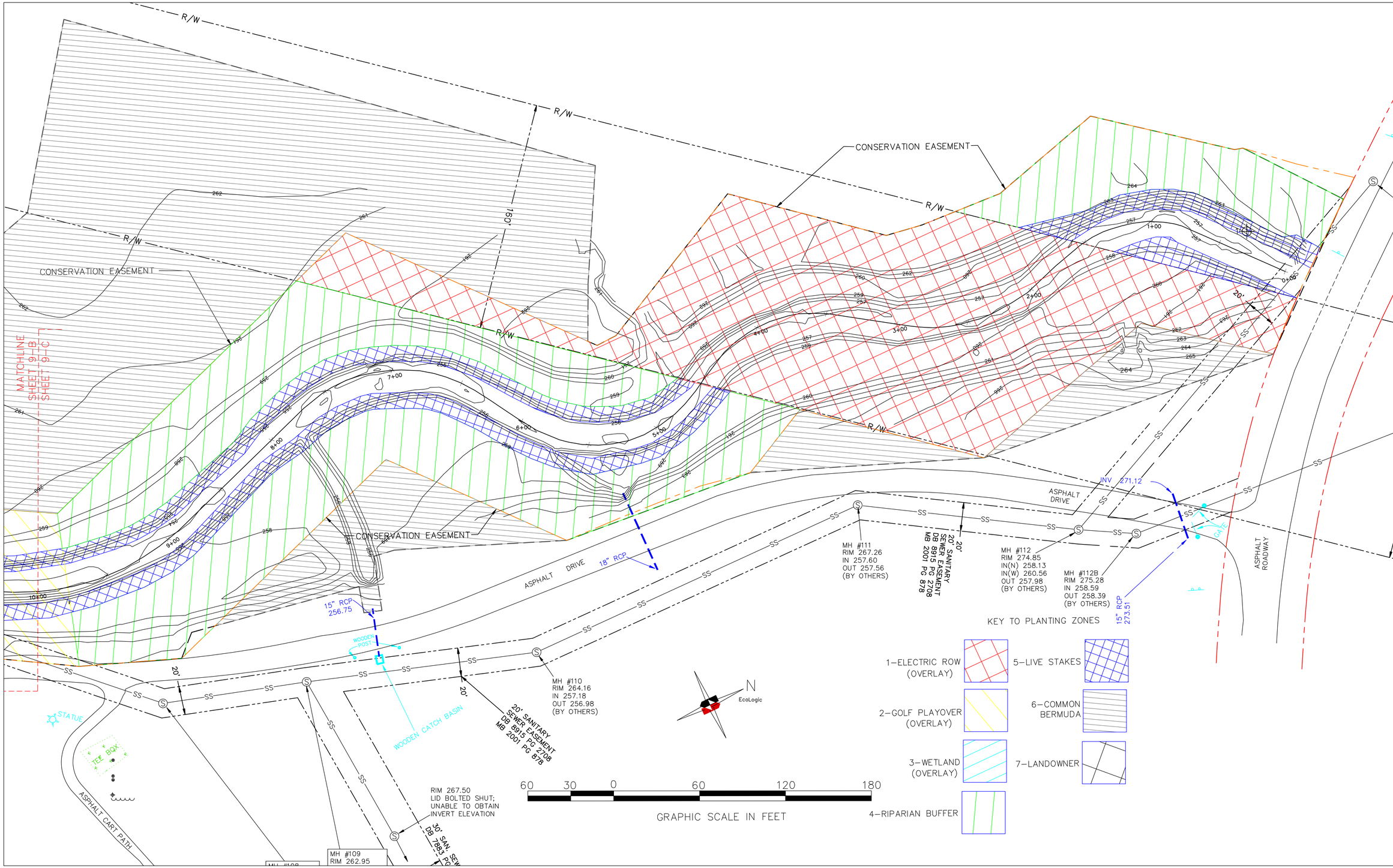
SCALE: 1" = 30'
DATE: 7/28/10
DRN. BY: MAT
CHECKED BY: MAT

PROJECT NO:
020591101

SHEET 14 OF 15

DRAWING

6-B



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FAX: 336/632-4445

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PROJECT:

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STREAM RESTORATION
WAKE COUNTY, NC

PREPARED FOR:

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AS-BUILT
PLANTING
ZONES

SCALE: 1" = 30'
DATE: 7/28/10
DRN. BY: MAT
CHECKED BY: MAT

PROJECT NO:
020591101

SHEET 15 OF 15

DRAWING

6-C