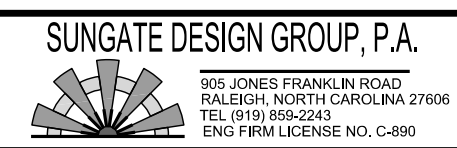


5/14/19

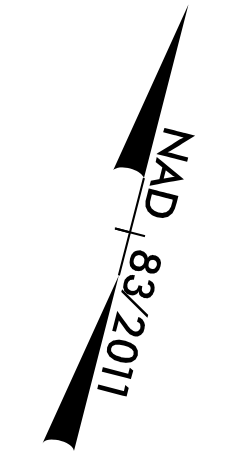
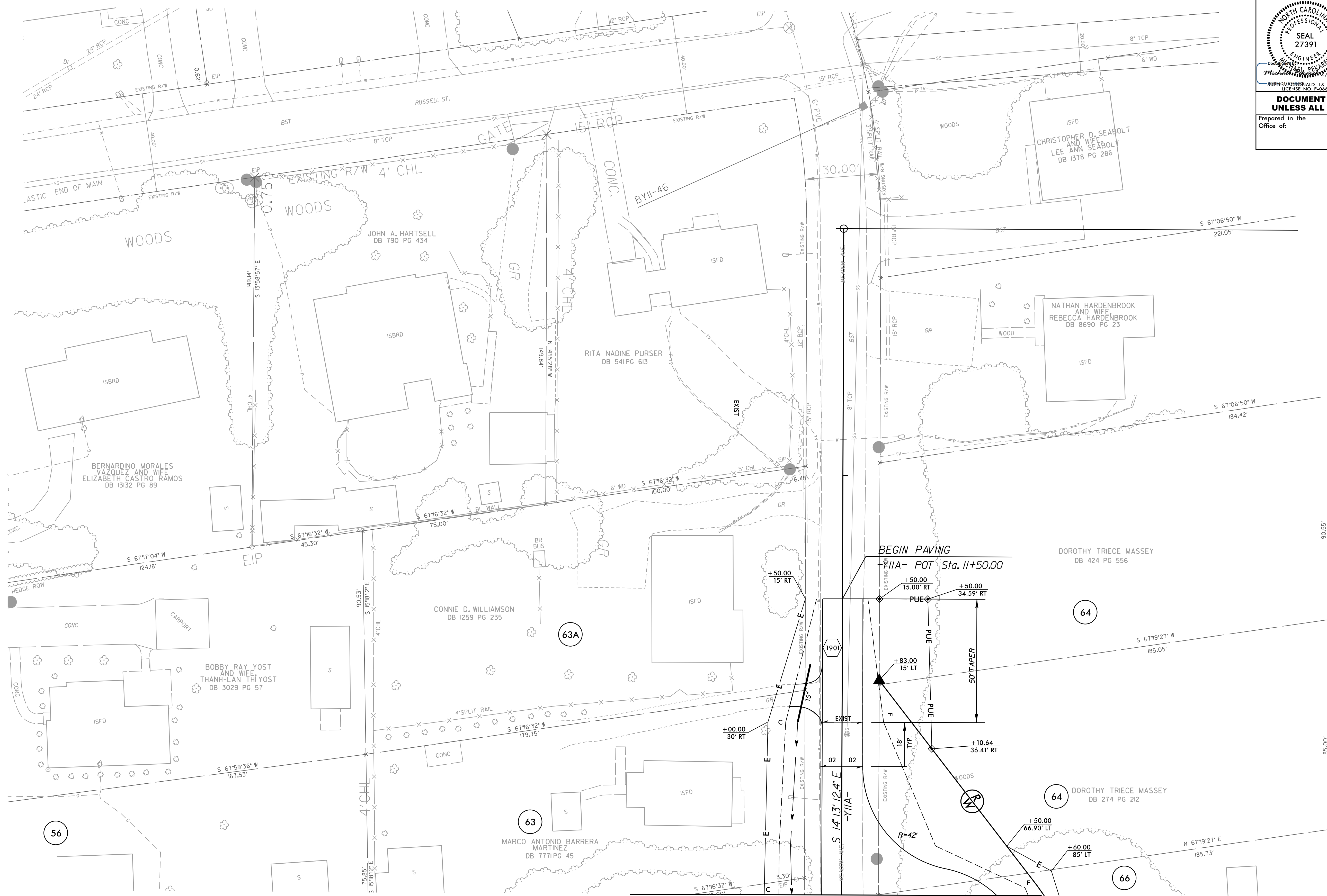


PROJECT REFERENCE NO. Y-4810K	SHEET NO. 19
----------------------------------	-----------------

ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 27391 MICHAEL J. PEEK	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 26971 JULIA DALTON
--	---

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MATCHLINE SEE SHEET 10
-Y11A- STA 12+70.00

-Y11A- SEE PROFILE SHEET 42

R:\P\43325_P\Proj\Y4810K_rdy_psh_19.dgn
 4/30/19 10:54 AM
 MJP

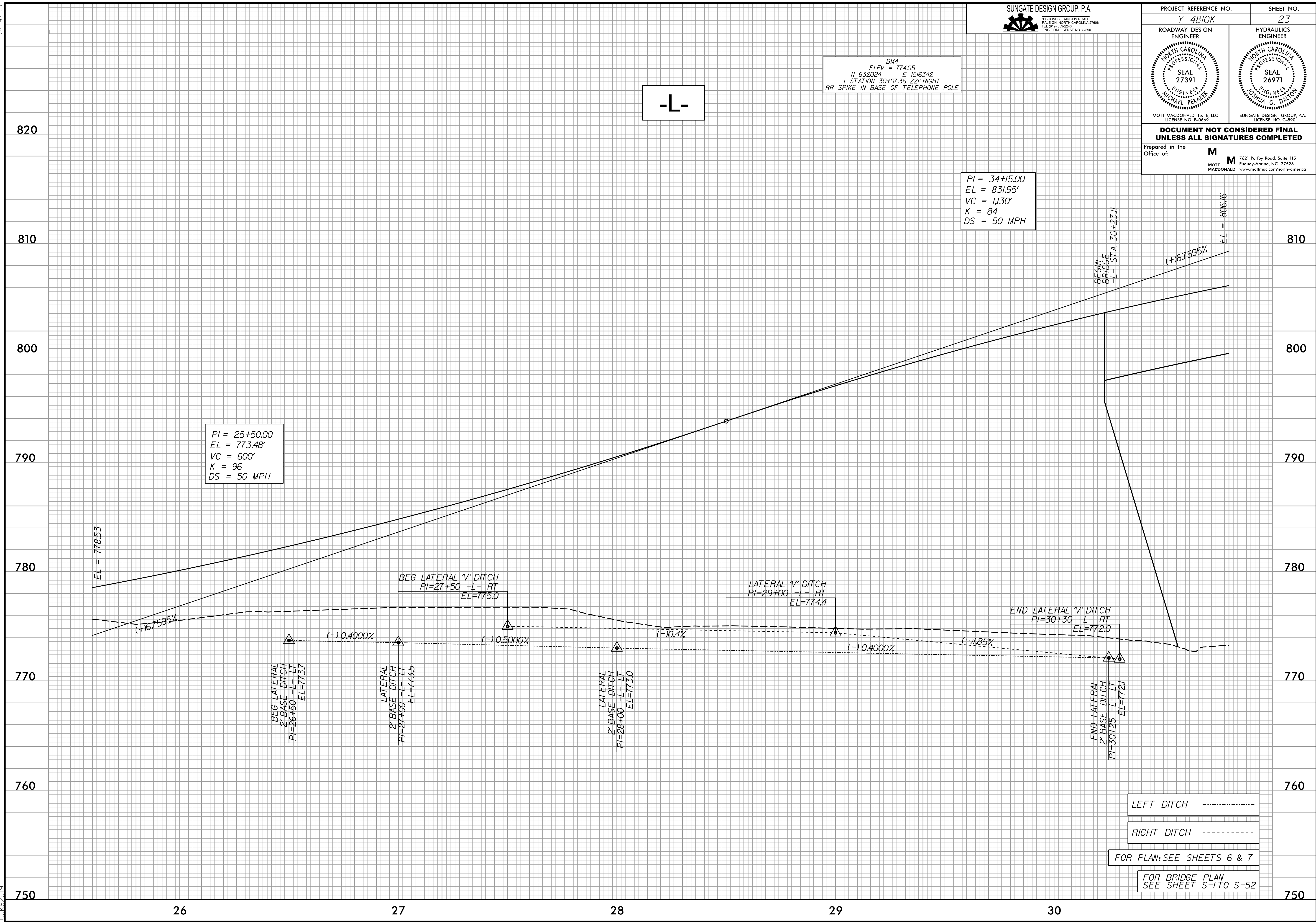
5/14/99
 I:\E149 AM\Projects\4810K\rdj.pfl.psh.dgn
 10:51:49 AM
 10:51:49 AM
 10:51:49 AM

BM4
 ELEV = 774.05
 N 632024 E 1516342
 L STATION 30+07.36 221' RIGHT
 RR SPIKE IN BASE OF TELEPHONE POLE

-L-

PI = 34+15.00
 EL = 831.95'
 VC = 1,130'
 K = 84
 DS = 50 MPH

PI = 25+50.00
 EL = 773.48'
 VC = 600'
 K = 96
 DS = 50 MPH



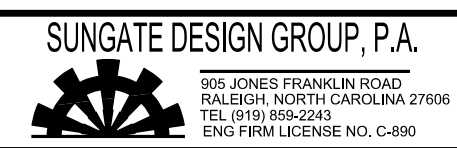
LEFT DITCH - - - - -

RIGHT DITCH - - - - -

FOR PLAN: SEE SHEETS 6 & 7

FOR BRIDGE PLAN SEE SHEET S-1 TO S-52

5/14/99



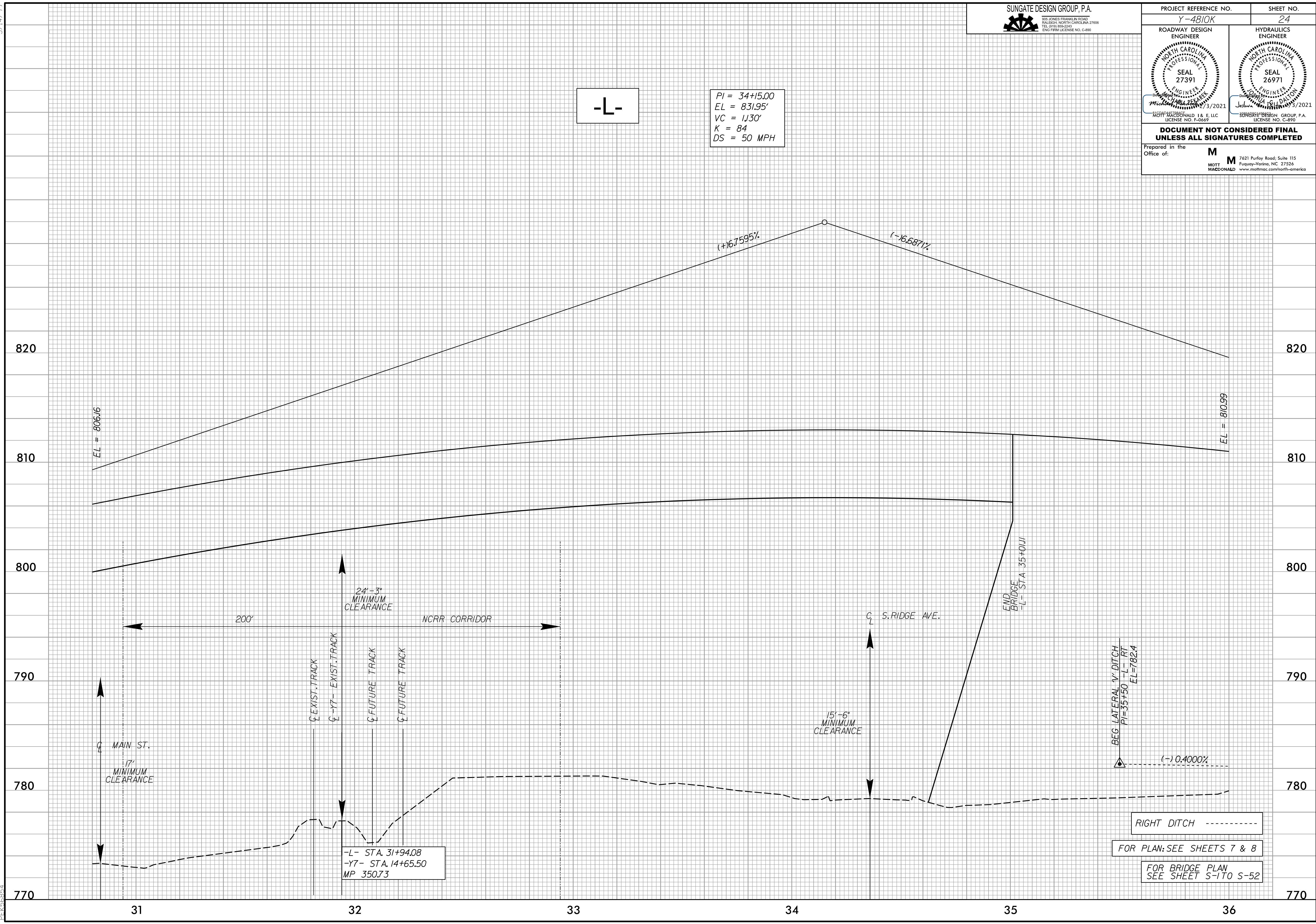
PROJECT REFERENCE NO. Y-4810K	SHEET NO. 24
ROADWAY DESIGN ENGINEER SEAL 27391 MOTT MACDONALD 1 & E, LLC LICENSE NO. F-06697	HYDRAULICS ENGINEER SEAL 26971 SUNGATE DESIGN GROUP, P.A. LICENSE NO. C-890

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-L-

PI = 34+15.00
 EL = 831.95'
 VC = 1,130'
 K = 84
 DS = 50 MPH



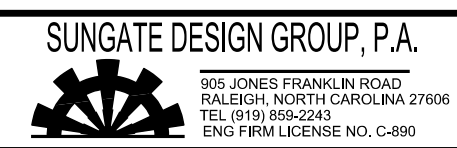
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RIGHT DITCH -----

FOR PLAN: SEE SHEETS 7 & 8

FOR BRIDGE PLAN SEE SHEET S-1 TO S-52

5/14/99

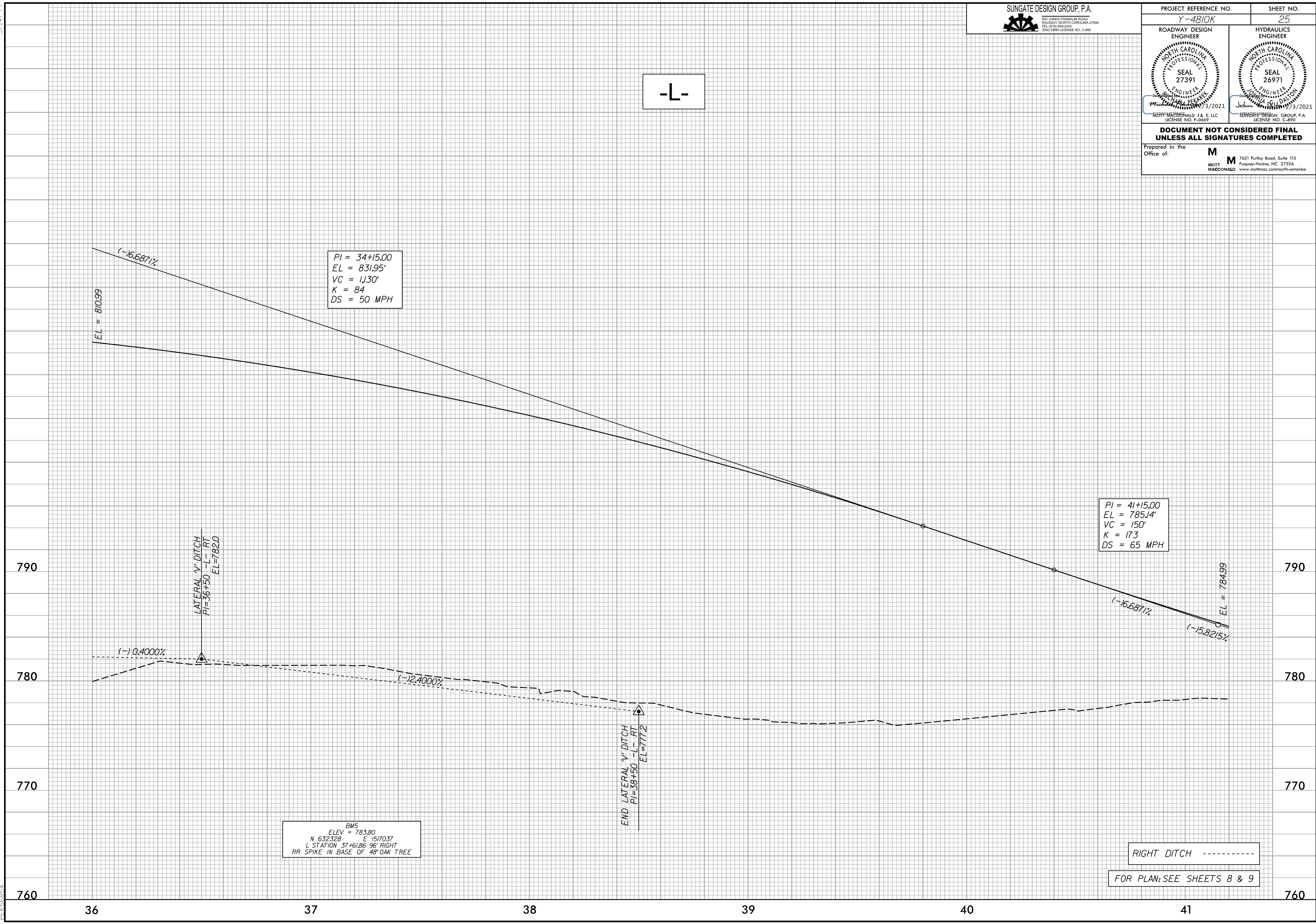


PROJECT REFERENCE NO. Y-4810K	SHEET NO. 25
ROADWAY DESIGN ENGINEER SEAL 27391 MOTT MACDONALD I & E, LLC LICENSE NO. F-06697	HYDRAULICS ENGINEER SEAL 26971 SUNGATE DESIGN GROUP, P.A. LICENSE NO. C-890

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-L-



RIGHT DITCH -----
FOR PLAN: SEE SHEETS 8 & 9

4:34:53 PM
4:\Users\rdm\My Documents\Projects\Y4810K\rdm\pfl.psh.dgn
PK:568874

5/14/99

SUNGATE DESIGN GROUP, P.A.
925 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL: (919) 892-2241
ENG FIRM LICENSE NO. C-890

PROJECT REFERENCE NO. Y-4810K	SHEET NO. 26
ROADWAY DESIGN ENGINEER SEAL 27391 MOTT MACDONALD 1 & E, LLC LICENSE NO. F-06697	HYDRAULICS ENGINEER SEAL 26971 MOTT MACDONALD 1 & E, LLC LICENSE NO. C-890

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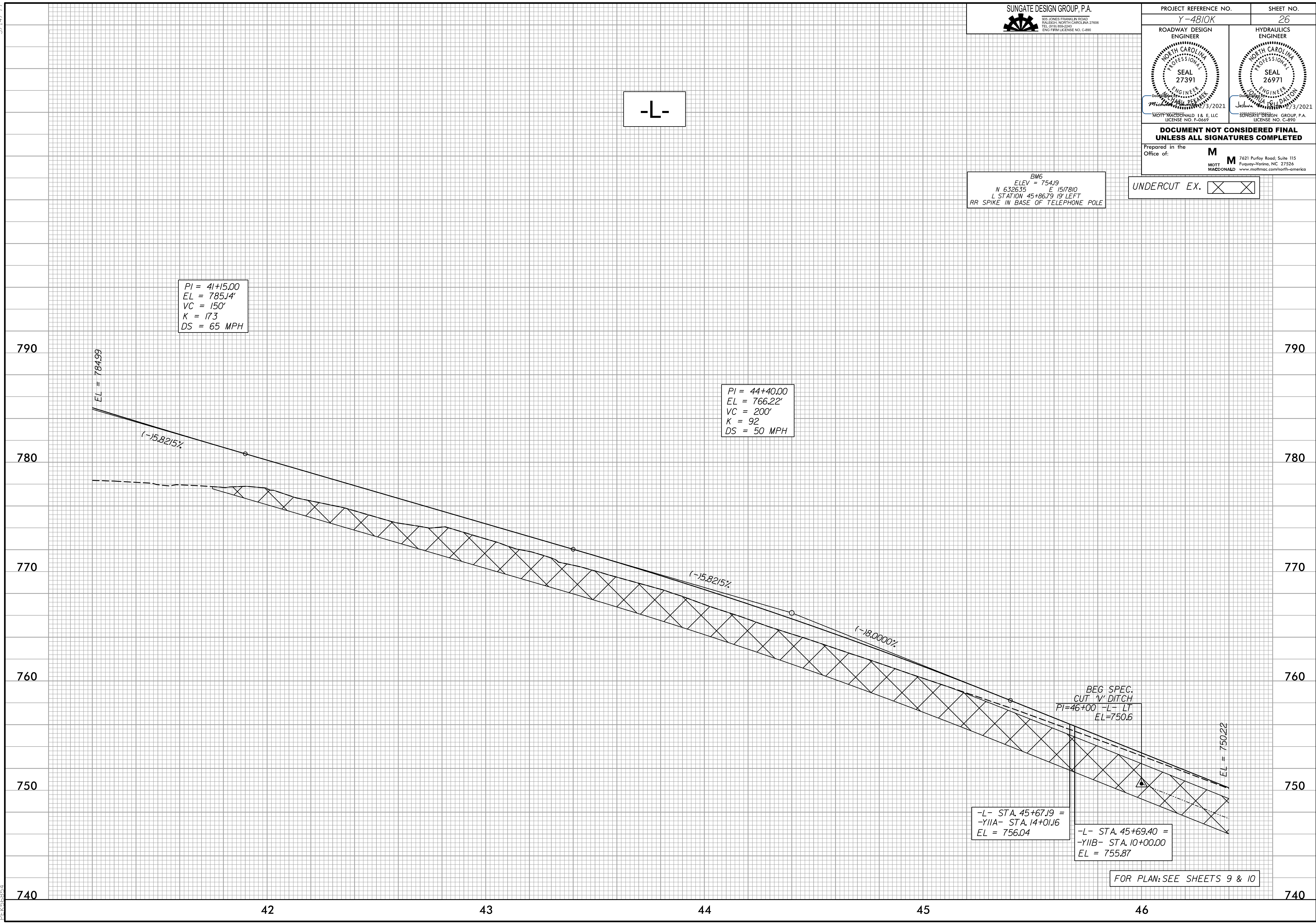
-L-

BM6
ELEV = 754.19
N 632635 E 1517810
L STATION 45+86.79 19' LEFT
RR SPIKE IN BASE OF TELEPHONE POLE

UNDERCUT EX.

PI = 41+15.00
EL = 785.14'
VC = 150'
K = 173
DS = 65 MPH

PI = 44+40.00
EL = 766.22'
VC = 200'
K = 92
DS = 50 MPH



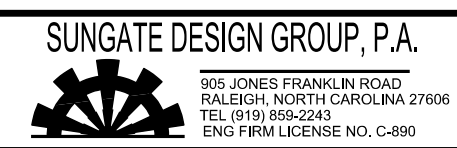
-L- STA. 45+67.19 =
-Y11A- STA. 14+01.16
EL = 756.04

-L- STA. 45+69.40 =
-Y11B- STA. 10+00.00
EL = 755.87

FOR PLAN: SEE SHEETS 9 & 10

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PEK 5/14/99

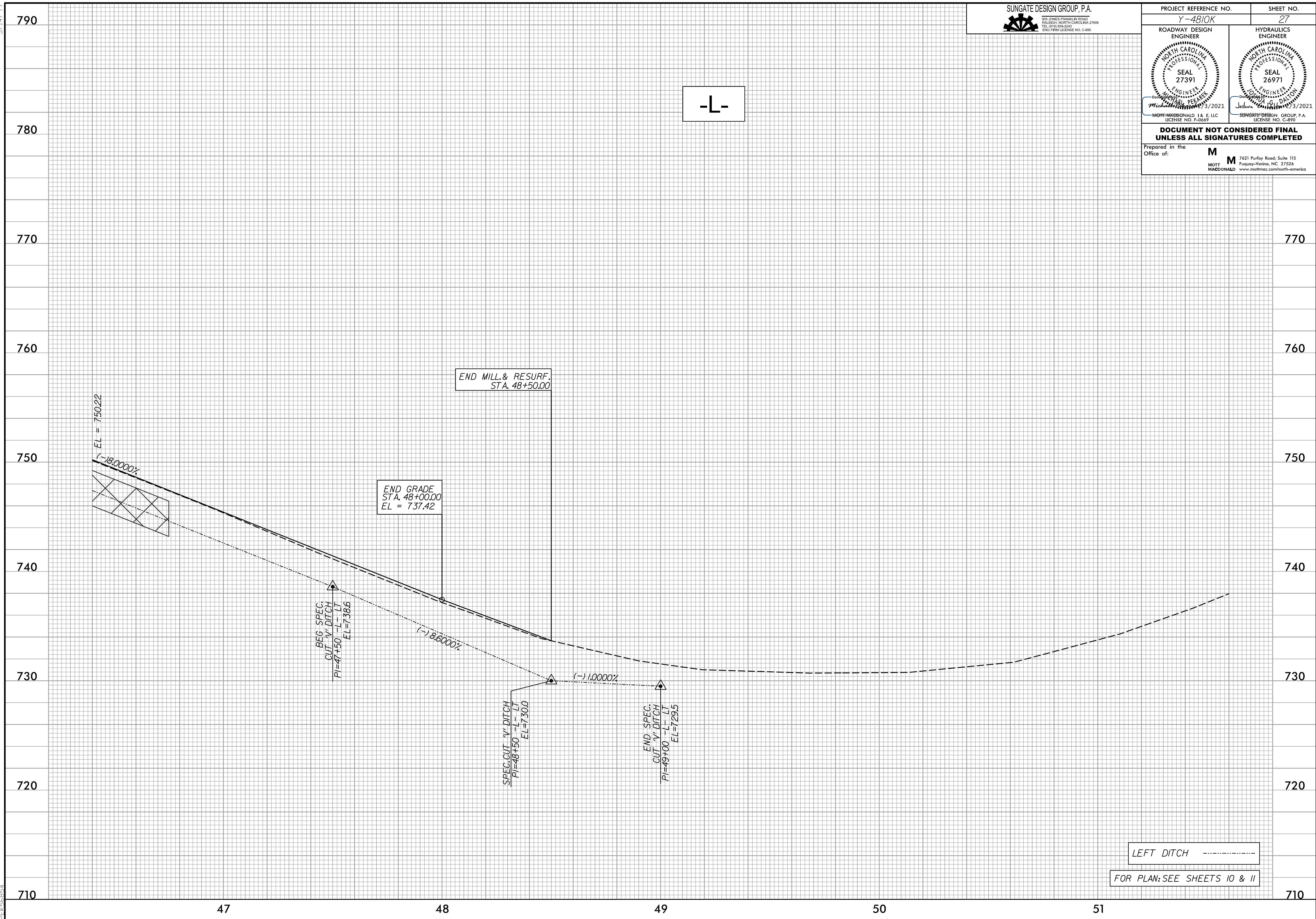
5/14/99



PROJECT REFERENCE NO. Y-4810K	SHEET NO. 27
ROADWAY DESIGN ENGINEER SEAL 27391	HYDRAULICS ENGINEER SEAL 26971
<i>Michael Peck</i>	<i>Justin Dalton</i>
MOFF-MACDONALD 1 & E, LLC LICENSE NO. F-06697	SUNGATE DESIGN GROUP, P.A. LICENSE NO. C-890

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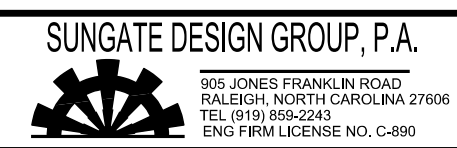
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LEFT DITCH -----
 FOR PLAN: SEE SHEETS 10 & 11

4:34:53 PM
4:\Projects\4810K\Drawings\Profile\4810K_rdy.pfl.psh.dgn
PEK 5/14/99

5/14/99



PROJECT REFERENCE NO. Y-4810K	SHEET NO. 28
ROADWAY DESIGN ENGINEER SEAL 27391	HYDRAULICS ENGINEER SEAL 26971
<i>Michael Beckwith</i> 3/2021	<i>Joshua Swadlow</i> 3/2021

-ROUND-

BEGIN GRADE
-ROUND- STA. 10+00.00 = **(A)**
-L- STA. 20+87.67
EL = 771.59

END GRADE
-ROUND- STA. 13+76.99 = **(A)**
-L- STA. 20+87.67
EL = 771.59

PI = 11+10.00
EL = 773.80'
VC = 150'
K = 37
DS = 35 MPH

PI = 12+98.00
EL = 770.00'
VC = 150'
K = 37
DS = 30 MPH

780

780

770

770

760

760

750

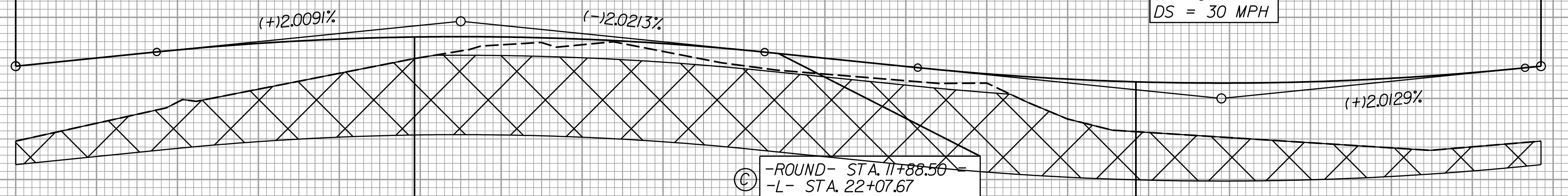
750

740

740

730

730



(C) -ROUND- STA. 11+88.50 =
-L- STA. 22+07.67
EL = 772.21

(B) -ROUND- STA. 10+98.58 =
-Y2A- STA. 19+82.44
EL = 773.03

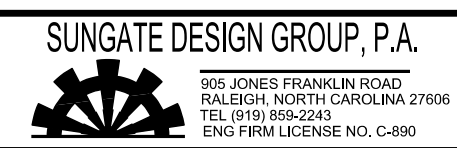
(D) -ROUND- STA. 12+76.87 =
-Y2B- STA. 10+00.00
EL = 770.82

UNDERCUT EX.

FOR PLAN: SEE SHEET 6

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PK 568874

5/14/99



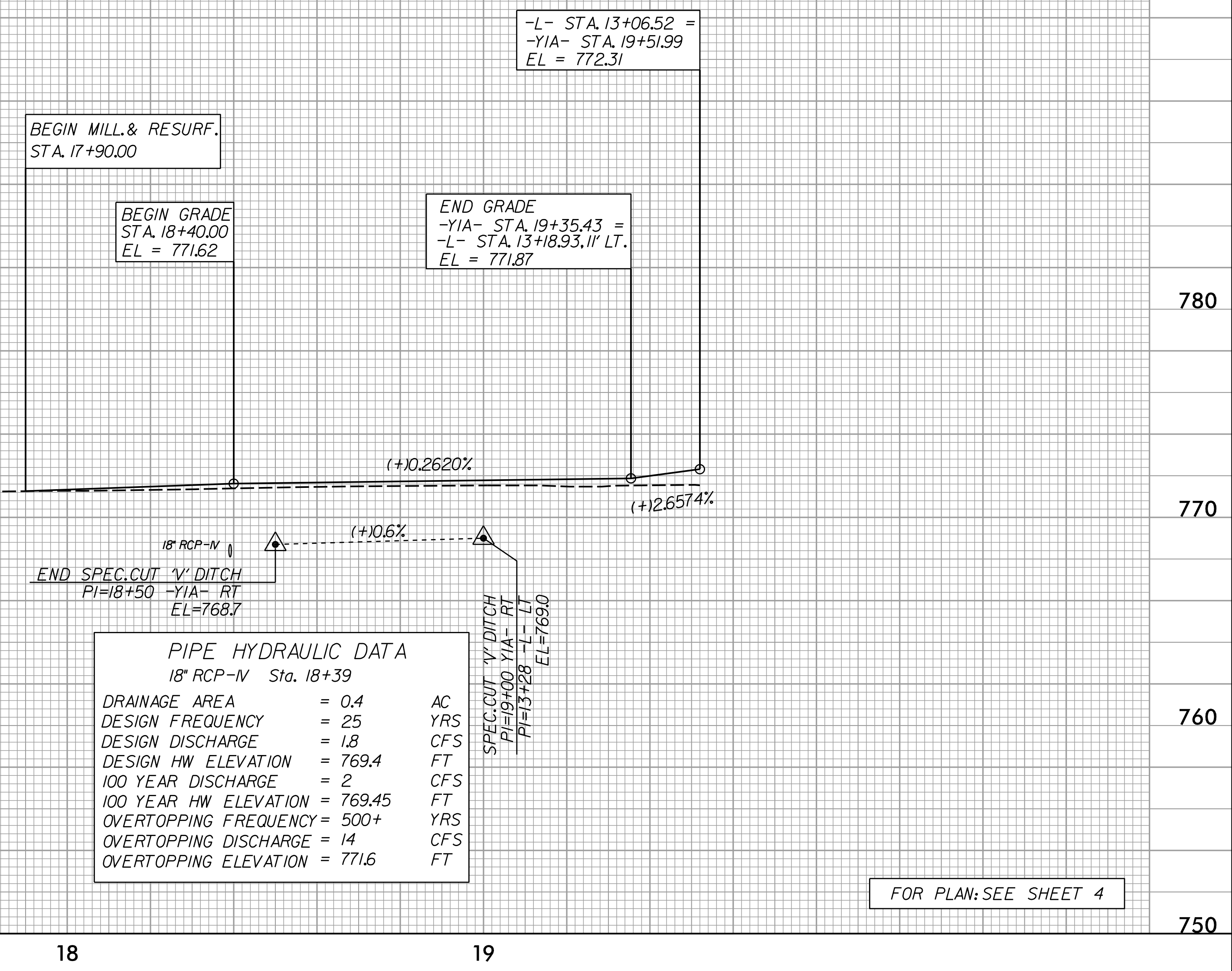
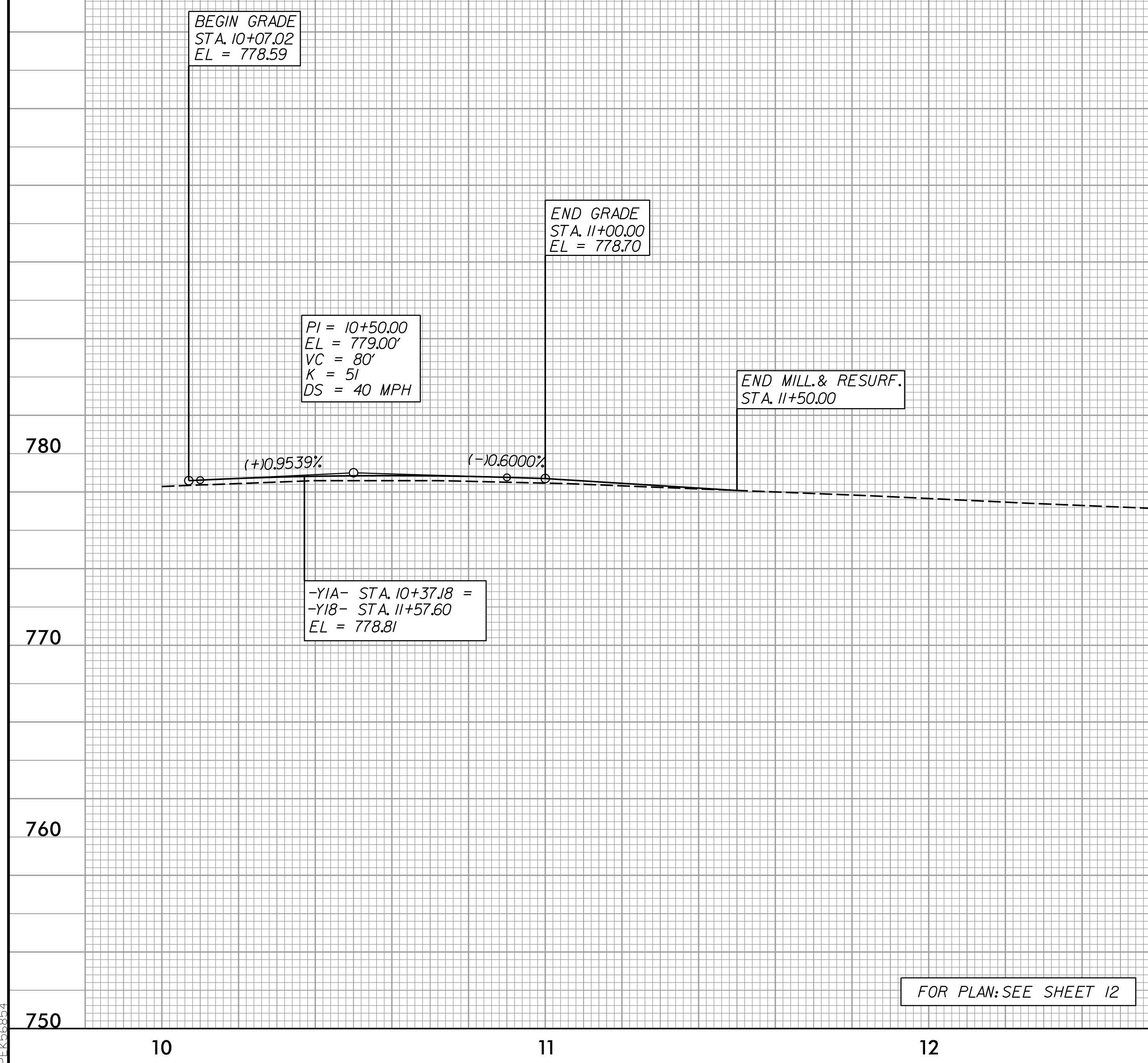
PROJECT REFERENCE NO. Y-4810K	SHEET NO. 29
ROADWAY DESIGN ENGINEER MOTT MACDONALD SEAL 27391 LICENSE NO. F-0669	HYDRAULICS ENGINEER MOTT MACDONALD SEAL 26971 LICENSE NO. C-890

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-Y1A-

-Y1A-



PIPE HYDRAULIC DATA
18" RCP-N Sta. 18+39

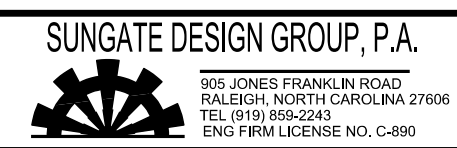
DRAINAGE AREA	= 0.4	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 1.8	CFS
DESIGN HW ELEVATION	= 769.4	FT
100 YEAR DISCHARGE	= 2	CFS
100 YEAR HW ELEVATION	= 769.45	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 14	CFS
OVERTOPPING ELEVATION	= 771.6	FT

FOR PLAN: SEE SHEET 12

FOR PLAN: SEE SHEET 4

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5/14/99

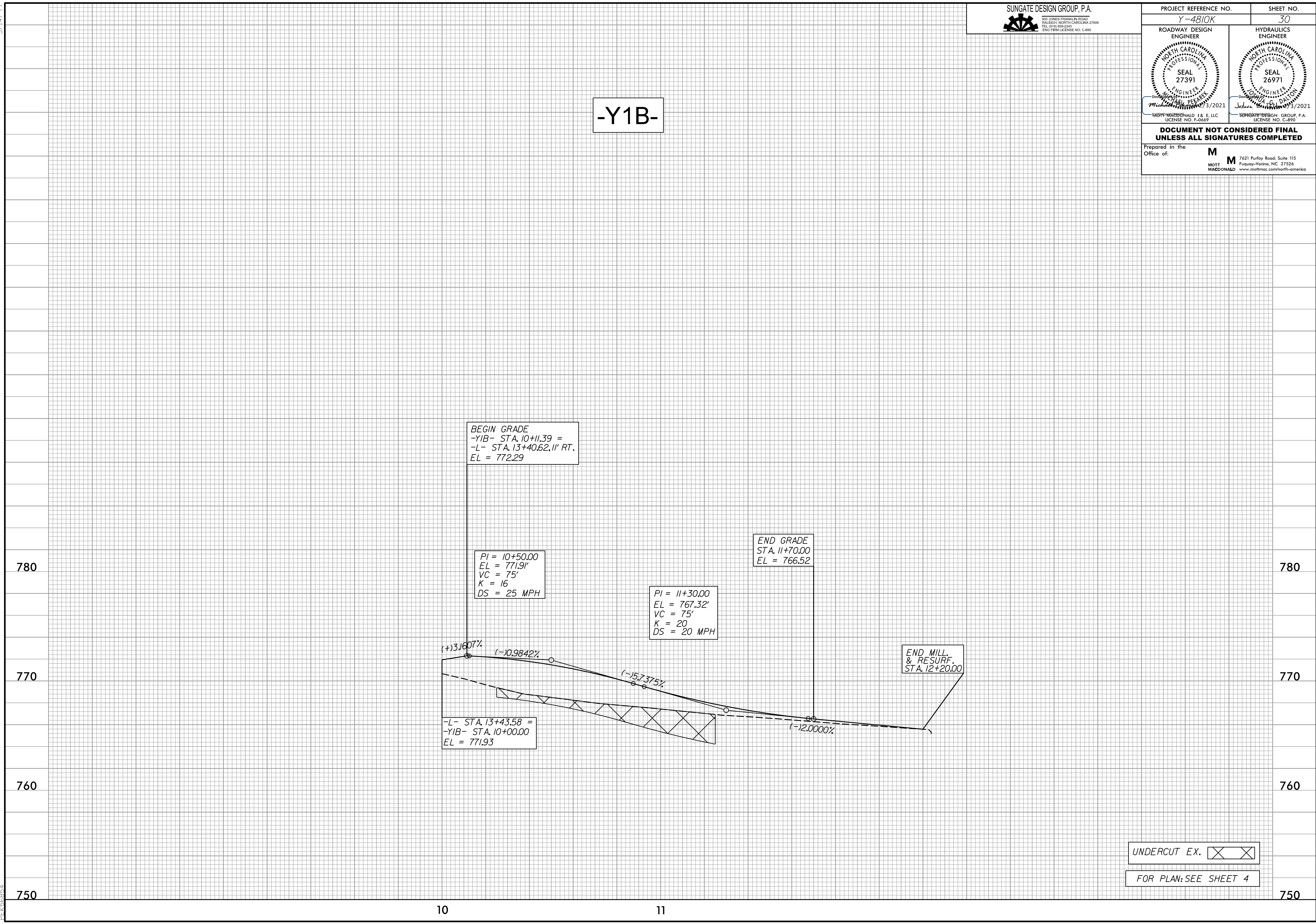


PROJECT REFERENCE NO. Y-4810K	SHEET NO. 30
ROADWAY DESIGN ENGINEER SEAL 27391 MOTT MACDONALD 1 & E, LLC LICENSE NO. F-06697	HYDRAULICS ENGINEER SEAL 26971 JESUVA DALTON SUNGATE DESIGN GROUP, P.A. LICENSE NO. C-890

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-Y1B-



BEGIN GRADE
-Y1B- STA. 10+11.39 =
-L- STA. 13+40.62, 11' RT.
EL = 772.29

PI = 10+50.00
EL = 771.91'
VC = 75'
K = 16
DS = 25 MPH

PI = 11+30.00
EL = 767.32'
VC = 75'
K = 20
DS = 20 MPH

END GRADE
STA. 11+70.00
EL = 766.52

END MILL
& RESURF.
STA. 12+20.00

-L- STA. 13+43.58 =
-Y1B- STA. 10+00.00
EL = 771.93

UNDERCUT EX.

FOR PLAN: SEE SHEET 4

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PEK368874

10

11

750

760

770

780

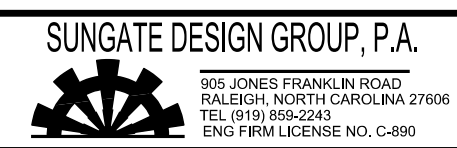
750

760

770

780

5/14/99

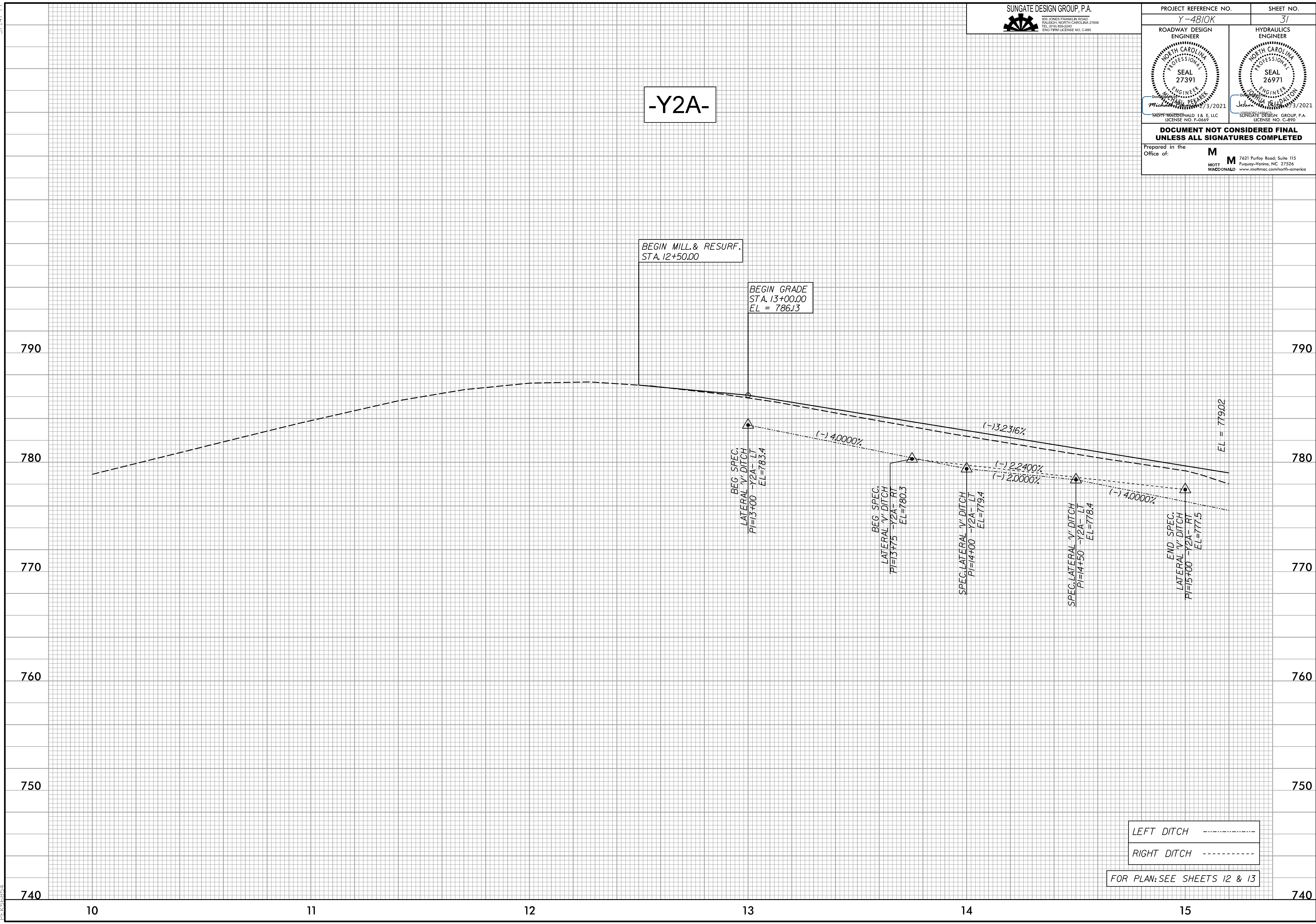


PROJECT REFERENCE NO. Y-4810K	SHEET NO. 31
ROADWAY DESIGN ENGINEER SEAL 27391 NORTH CAROLINA PROFESSIONAL ENGINEER MOTTT MACDONALD 1 & E, LLC LICENSE NO. F-06697	HYDRAULICS ENGINEER SEAL 26971 NORTH CAROLINA PROFESSIONAL ENGINEER MOTTT MACDONALD 1 & E, LLC LICENSE NO. F-06697

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-Y2A-



LEFT DITCH - - - - -
RIGHT DITCH - - - - -

FOR PLAN: SEE SHEETS 12 & 13

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PEK 5/14/99

5/14/19

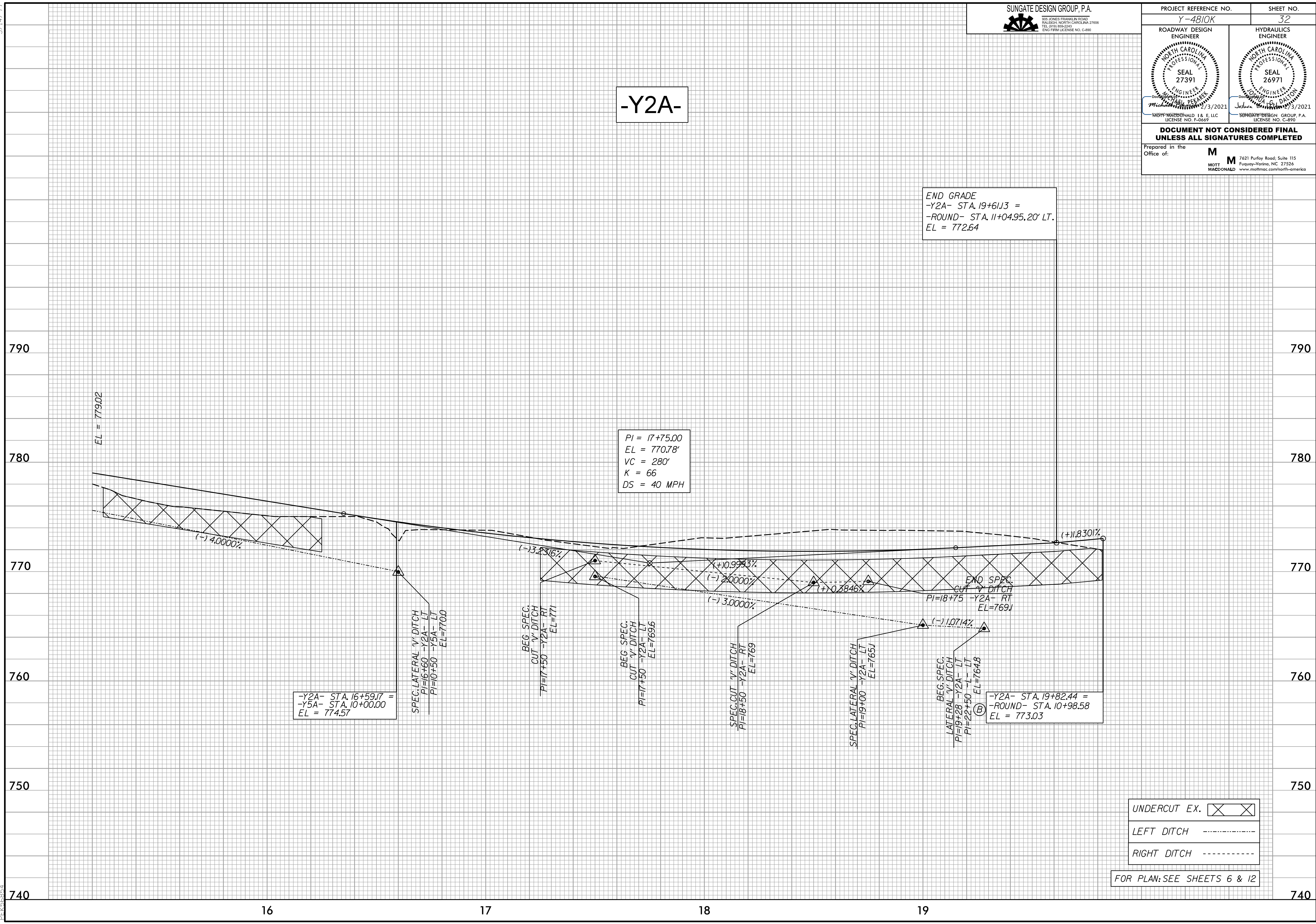
PROJECT REFERENCE NO. Y-4810K	SHEET NO. 32
ROADWAY DESIGN ENGINEER SEAL 27391 MOTT MACDONALD 1 & E, LLC LICENSE NO. F-06697	HYDRAULICS ENGINEER SEAL 26971 JESUVA DALTON SUNGATE DESIGN GROUP, P.A. LICENSE NO. C-890

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Fuquay-Varina, NC 27526
www.mottmac.com/north-america

-Y2A-

END GRADE
-Y2A- STA. 19+61.13 =
-ROUND- STA. 11+04.95, 20' LT.
EL = 772.64



PI = 17+75.00
EL = 770.78'
VC = 280'
K = 66
DS = 40 MPH

-Y2A- STA. 16+59.17 =
-Y5A- STA. 10+00.00
EL = 774.57

SPEC. LATERAL V. DITCH
PI=16+60 -Y2A- LT
PI=10+50 -Y5A- LT
EL=7700

BEG. SPEC. CUT V. DITCH
PI=17+50 -Y2A- RT
EL=771

BEG. SPEC. CUT V. DITCH
PI=17+50 -Y2A- LT
EL=7696

SPEC. CUT V. DITCH
PI=18+50 -Y2A- RT
EL=769

SPEC. LATERAL V. DITCH
PI=19+00 -Y2A- LT
EL=7651

BEG. SPEC. LATERAL V. DITCH
PI=19+28 -Y2A- LT
PI=22+50 -L- LT
EL=7648

-Y2A- STA. 19+82.44 =
-ROUND- STA. 10+98.58
EL = 773.03

UNDERCUT EX.

LEFT DITCH

RIGHT DITCH

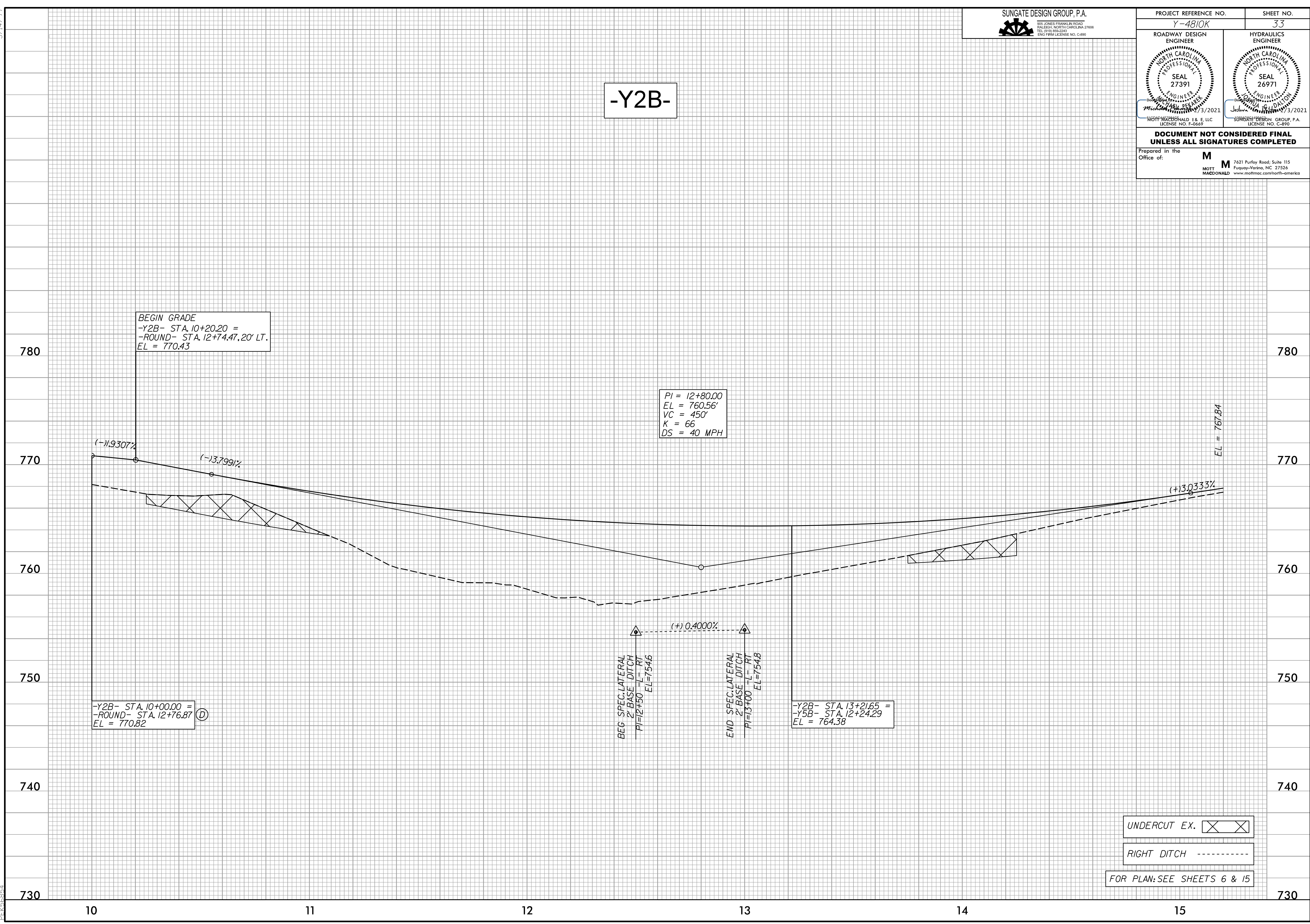
FOR PLAN: SEE SHEETS 6 & 12

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PEK368874

5/14/99

PROJECT REFERENCE NO. Y-4810K	SHEET NO. 33
ROADWAY DESIGN ENGINEER SEAL 27391 MOTT MACDONALD 1 & E, LLC LICENSE NO. F-06697	HYDRAULICS ENGINEER SEAL 26971 MOTT MACDONALD 1 & E, LLC LICENSE NO. C-890

-Y2B-



BEGIN GRADE
-Y2B- STA. 10+20.20 =
-ROUND- STA. 12+74.47, 20' LT.
EL = 770.43

PI = 12+80.00
EL = 760.56'
VC = 450'
K = 66
DS = 40 MPH

-Y2B- STA. 10+00.00 =
-ROUND- STA. 12+76.87
EL = 770.82

BEG. SPEC. LATERAL
2' BASE DITCH
L-RT
PI=12+50
EL=754.6

END SPEC. LATERAL
2' BASE DITCH
L-RT
PI=13+00
EL=754.8

-Y2B- STA. 13+21.65 =
-Y5B- STA. 12+24.29
EL = 764.38

EL = 767.84

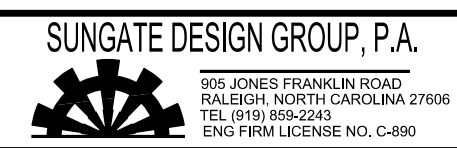
UNDERCUT EX.

RIGHT DITCH

FOR PLAN: SEE SHEETS 6 & 15

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PEK 3/6/97

5/14/99



PROJECT REFERENCE NO. Y-4810K	SHEET NO. 34
ROADWAY DESIGN ENGINEER SEAL 27391 MICHAEL PEKAREK MOTT MACDONALD 1 & E, LLC LICENSE NO. F-06697	HYDRAULICS ENGINEER SEAL 26971 JONIA S. DALTON SUNGATE DESIGN GROUP, P.A. LICENSE NO. C-890

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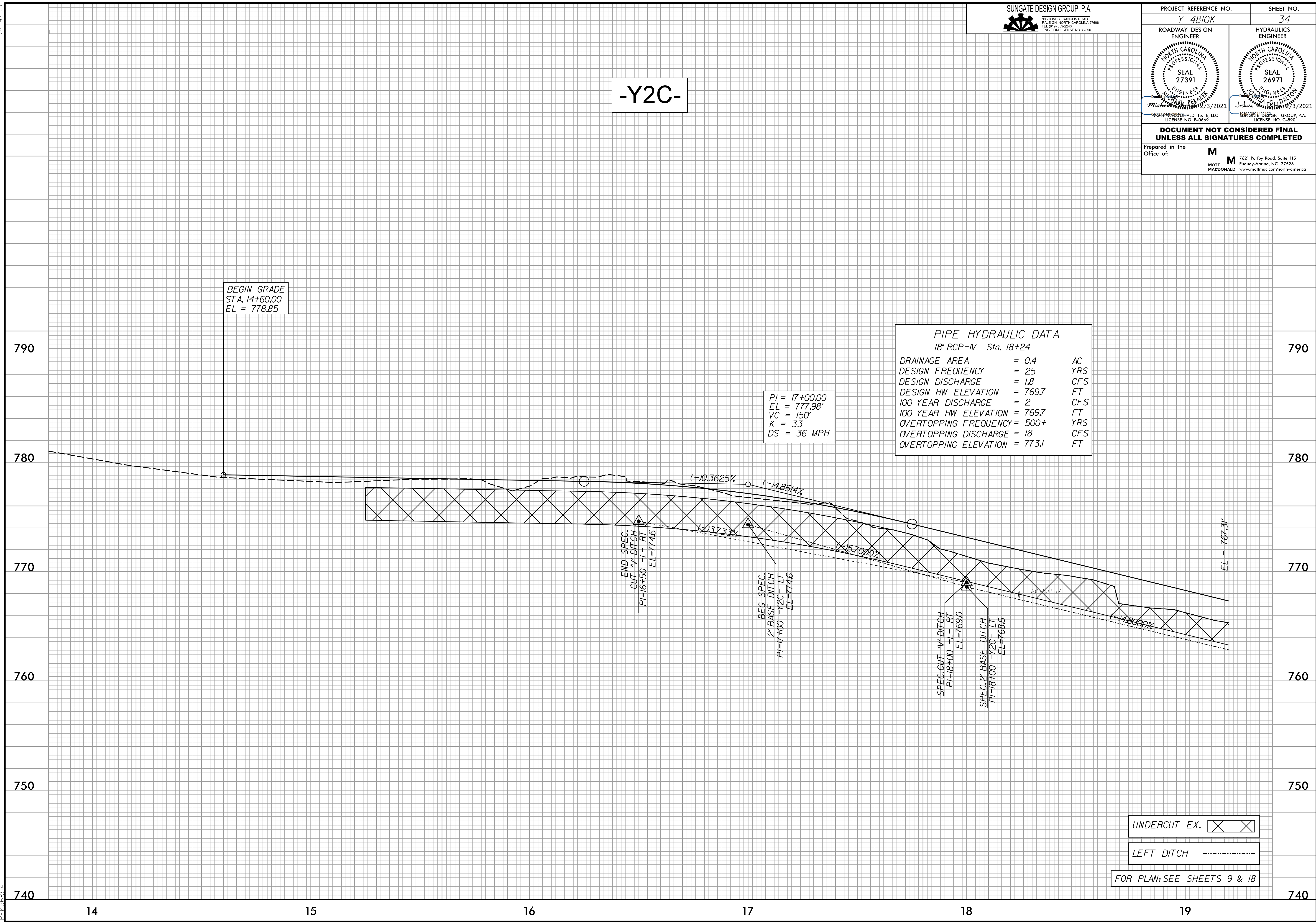
-Y2C-

BEGIN GRADE
STA. 14+60.00
EL = 778.85

PI = 17+00.00
EL = 777.98'
VC = 150'
K = 33
DS = 36 MPH

PIPE HYDRAULIC DATA
18" RCP-IV Sta. 18+24

DRAINAGE AREA	= 0.4	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 1.8	CFS
DESIGN HW ELEVATION	= 769.7	FT
100 YEAR DISCHARGE	= 2	CFS
100 YEAR HW ELEVATION	= 769.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 18	CFS
OVERTOPPING ELEVATION	= 773J	FT



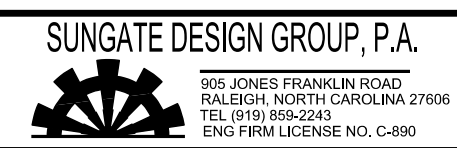
UNDERCUT EX.

LEFT DITCH

FOR PLAN: SEE SHEETS 9 & 18

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PEK 5/14/99

5/14/99



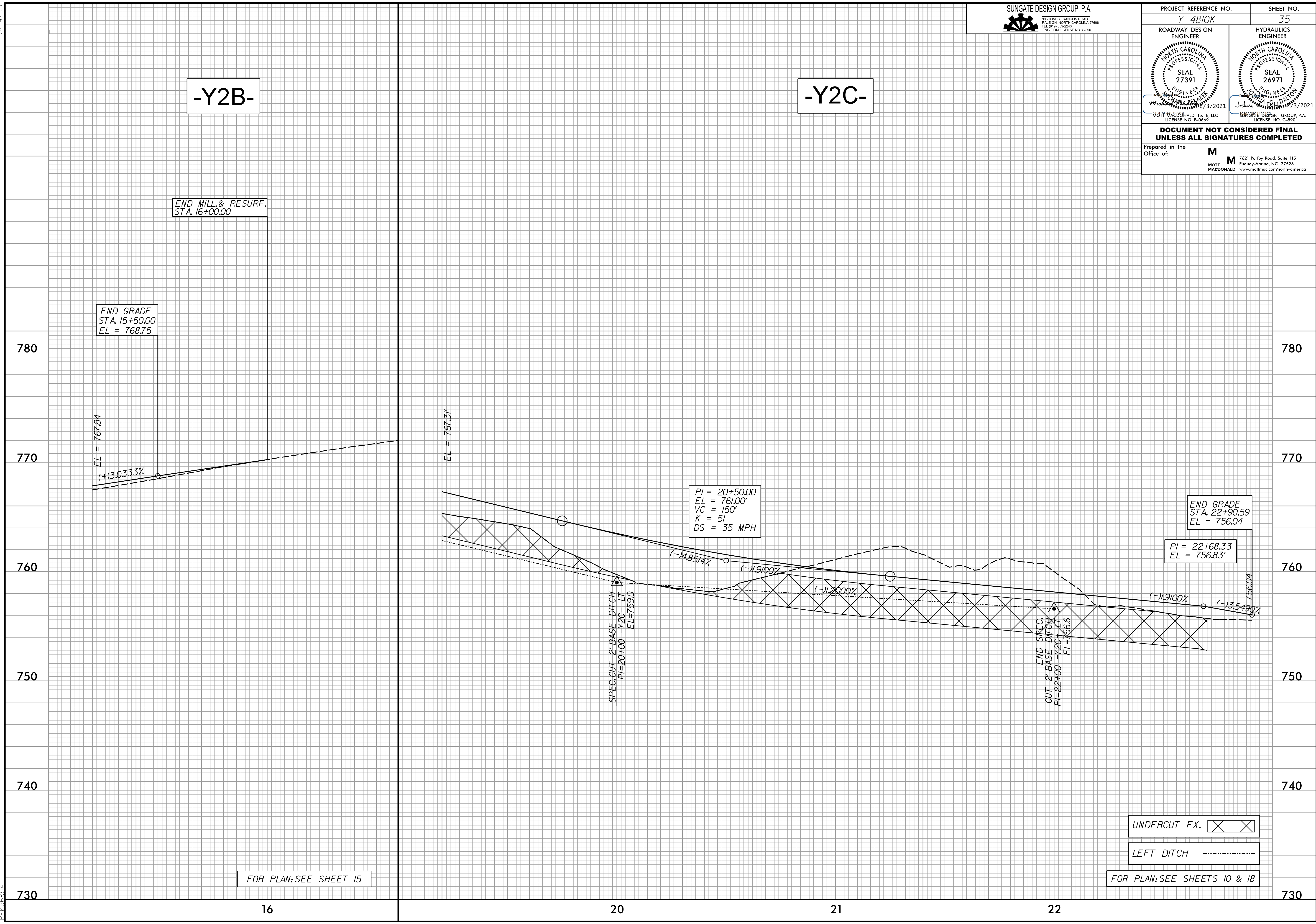
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ROADWAY DESIGN ENGINEER SEAL 27391 MOTT MACDONALD 1 & E, LLC LICENSE NO. F-06697	HYDRAULICS ENGINEER SEAL 26971 MOTT MACDONALD 1 & E, LLC LICENSE NO. C-890

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-Y2B-

-Y2C-



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PEK:668874

FOR PLAN: SEE SHEET 15

UNDERCUT EX.

LEFT DITCH

FOR PLAN: SEE SHEETS 10 & 18

16

20

21

22

730

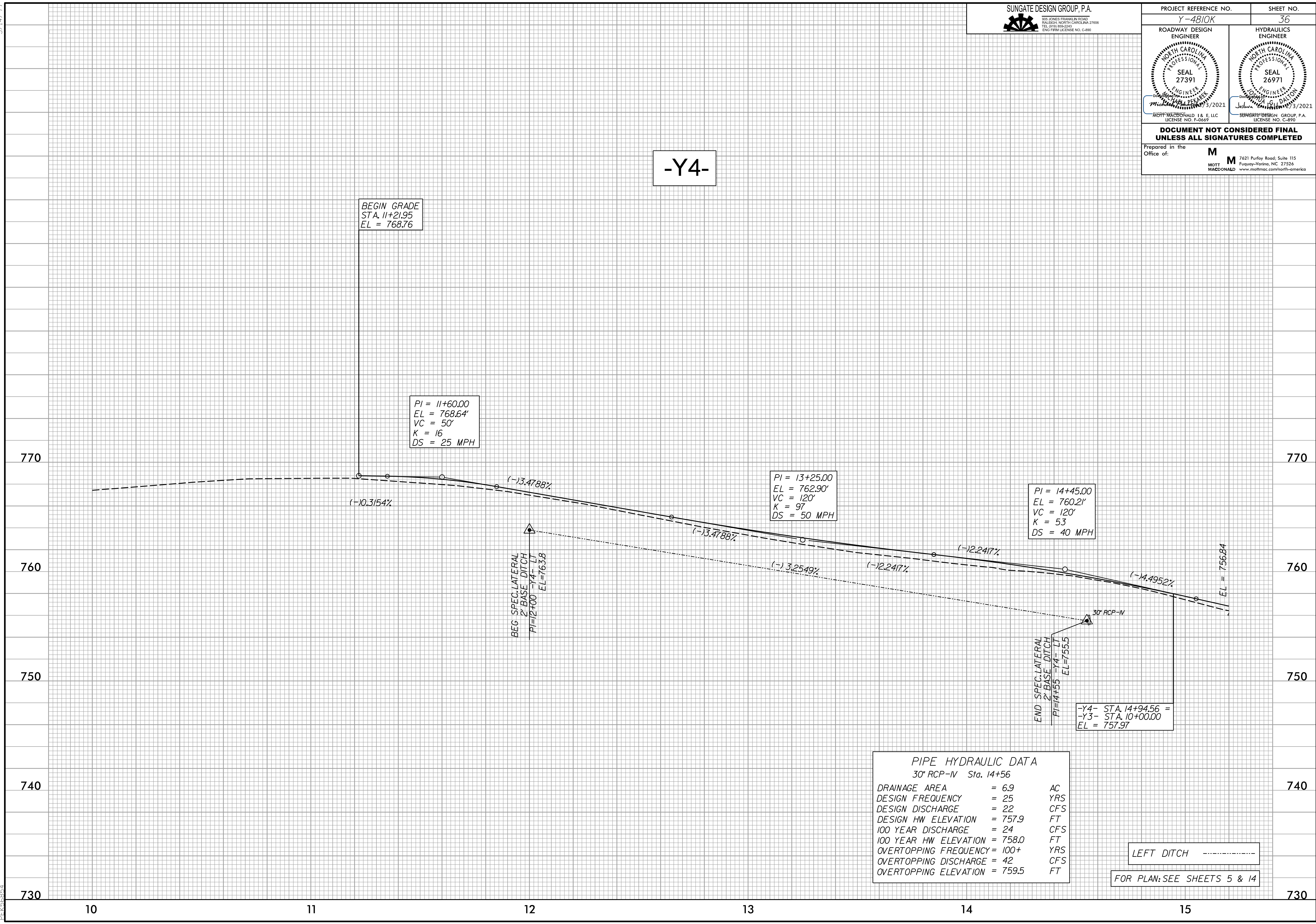
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PROJECT REFERENCE NO. Y-4810K	SHEET NO. 36
ROADWAY DESIGN ENGINEER MOTT MACDONALD SEAL 27391 3/2021	HYDRAULICS ENGINEER MOTT MACDONALD SEAL 26971 3/2021

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-Y4-



BEGIN GRADE
STA. 11+21.95
EL = 768.76

PI = 11+60.00
EL = 768.64'
VC = 50'
K = 16
DS = 25 MPH

PI = 13+25.00
EL = 762.90'
VC = 120'
K = 97
DS = 50 MPH

PI = 14+45.00
EL = 760.21'
VC = 120'
K = 53
DS = 40 MPH

BEG. SPEC. LATERAL
2' BASE DITCH
PI=12+00 Y4-LT
EL=763.8

END SPEC. LATERAL
2' BASE DITCH
PI=14+55 Y4-LT
EL=755.5

-Y4- STA. 14+94.56 =
-Y3- STA. 10+00.00
EL = 757.97

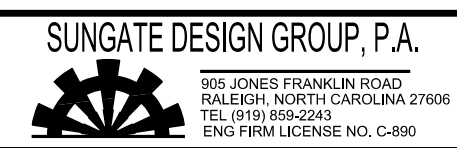
PIPE HYDRAULIC DATA
30" RCP-IV Sta. 14+56

DRAINAGE AREA	= 6.9	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 22	CFS
DESIGN HW ELEVATION	= 757.9	FT
100 YEAR DISCHARGE	= 24	CFS
100 YEAR HW ELEVATION	= 758.0	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 42	CFS
OVERTOPPING ELEVATION	= 759.5	FT

LEFT DITCH -----

FOR PLAN: SEE SHEETS 5 & 14

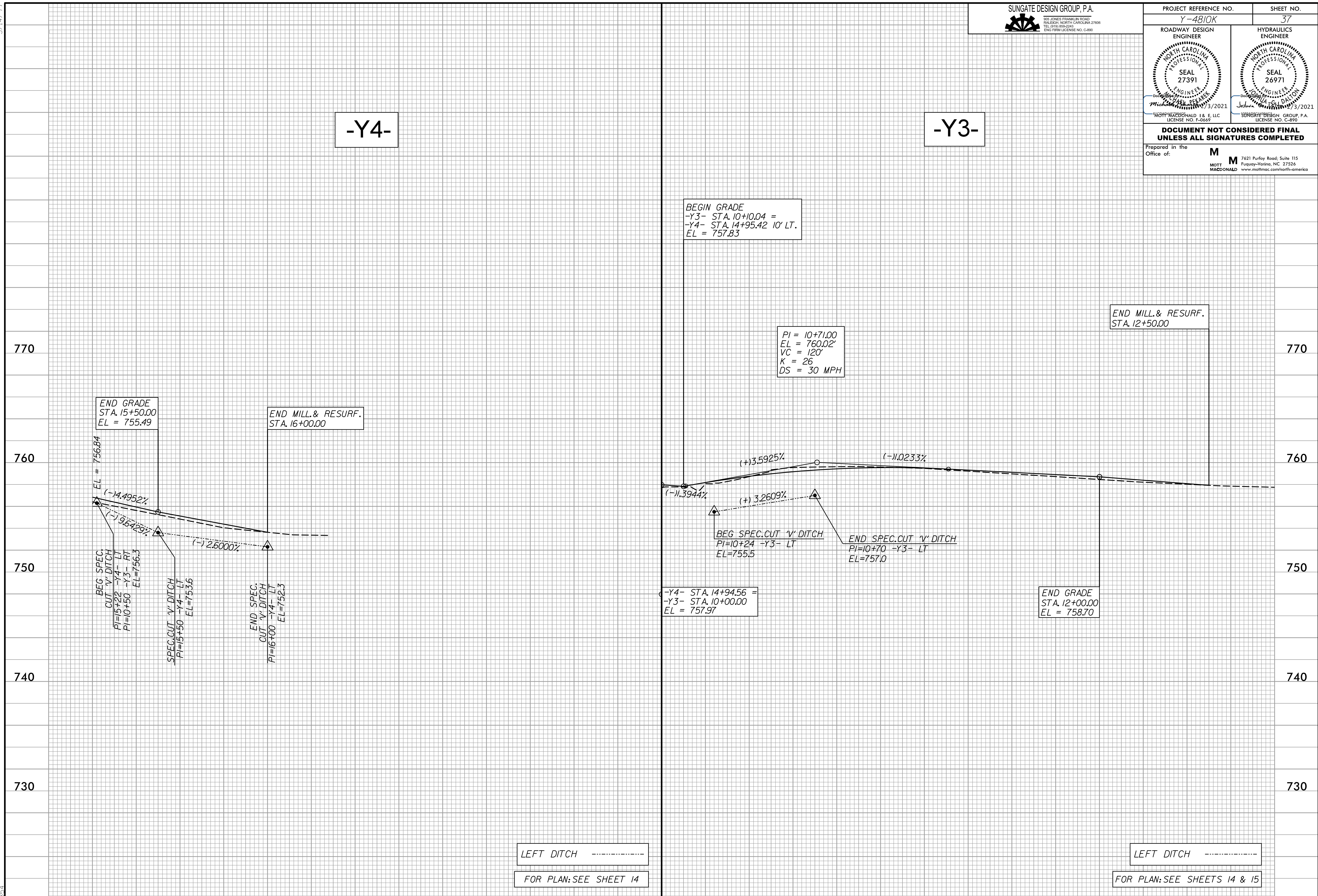
5/14/99



PROJECT REFERENCE NO. Y-4810K	SHEET NO. 37
ROADWAY DESIGN ENGINEER SEAL 27391 MICHAEL BEKAERK 3/2021	HYDRAULICS ENGINEER SEAL 26971 JOSHUA S. DALTON 3/2021
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-Y4-

-Y3-



LEFT DITCH -----
FOR PLAN: SEE SHEET 14

LEFT DITCH -----
FOR PLAN: SEE SHEETS 14 & 15

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16

10

11

12

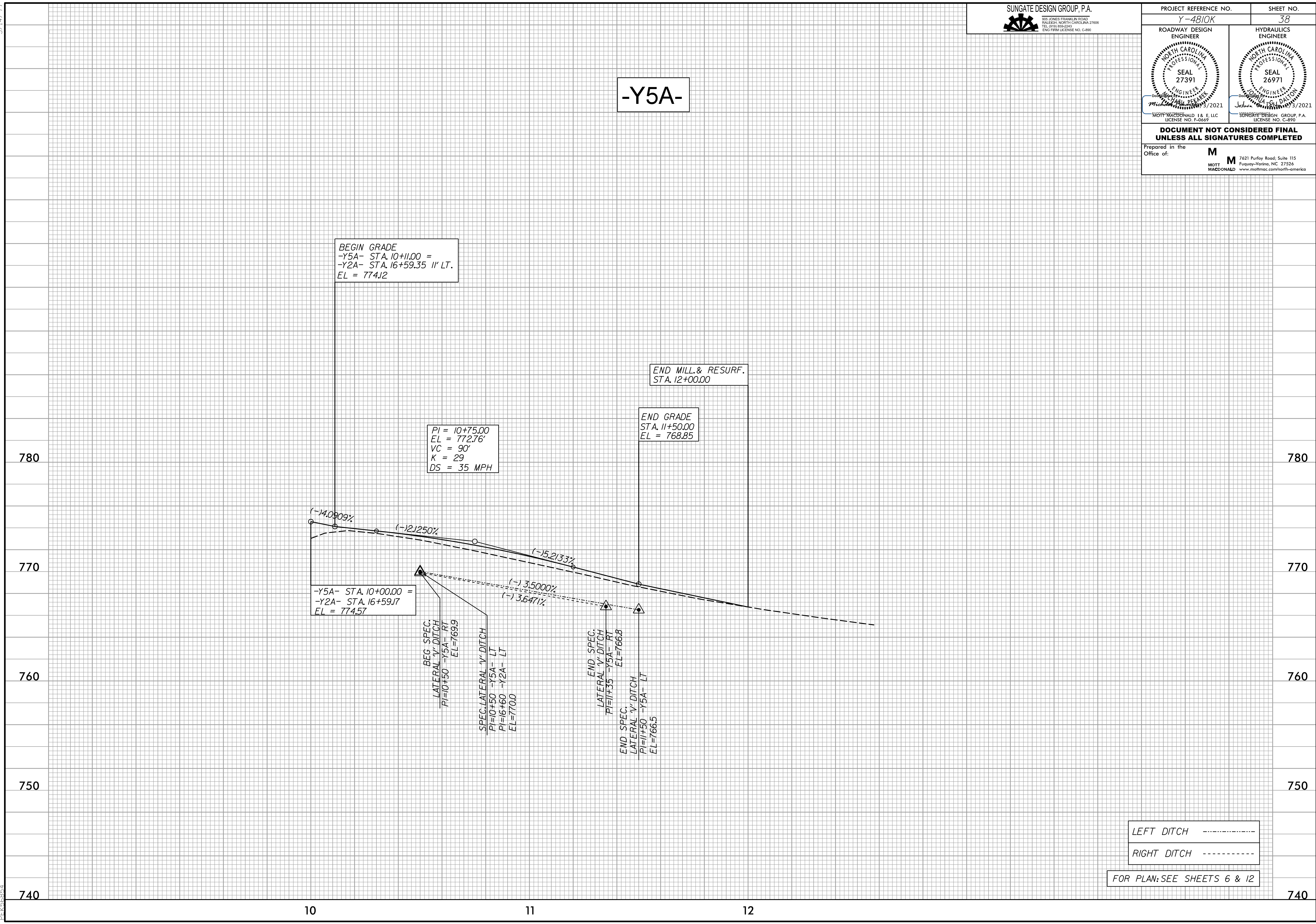
5/14/99

PROJECT REFERENCE NO. Y-4810K	SHEET NO. 38
ROADWAY DESIGN ENGINEER SEAL 27391 MOTT MACDONALD 1 & E, LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER SEAL 26971 MOTT MACDONALD 1 & E, LLC LICENSE NO. C-890

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-Y5A-



LEFT DITCH -----
RIGHT DITCH -----

FOR PLAN: SEE SHEETS 6 & 12

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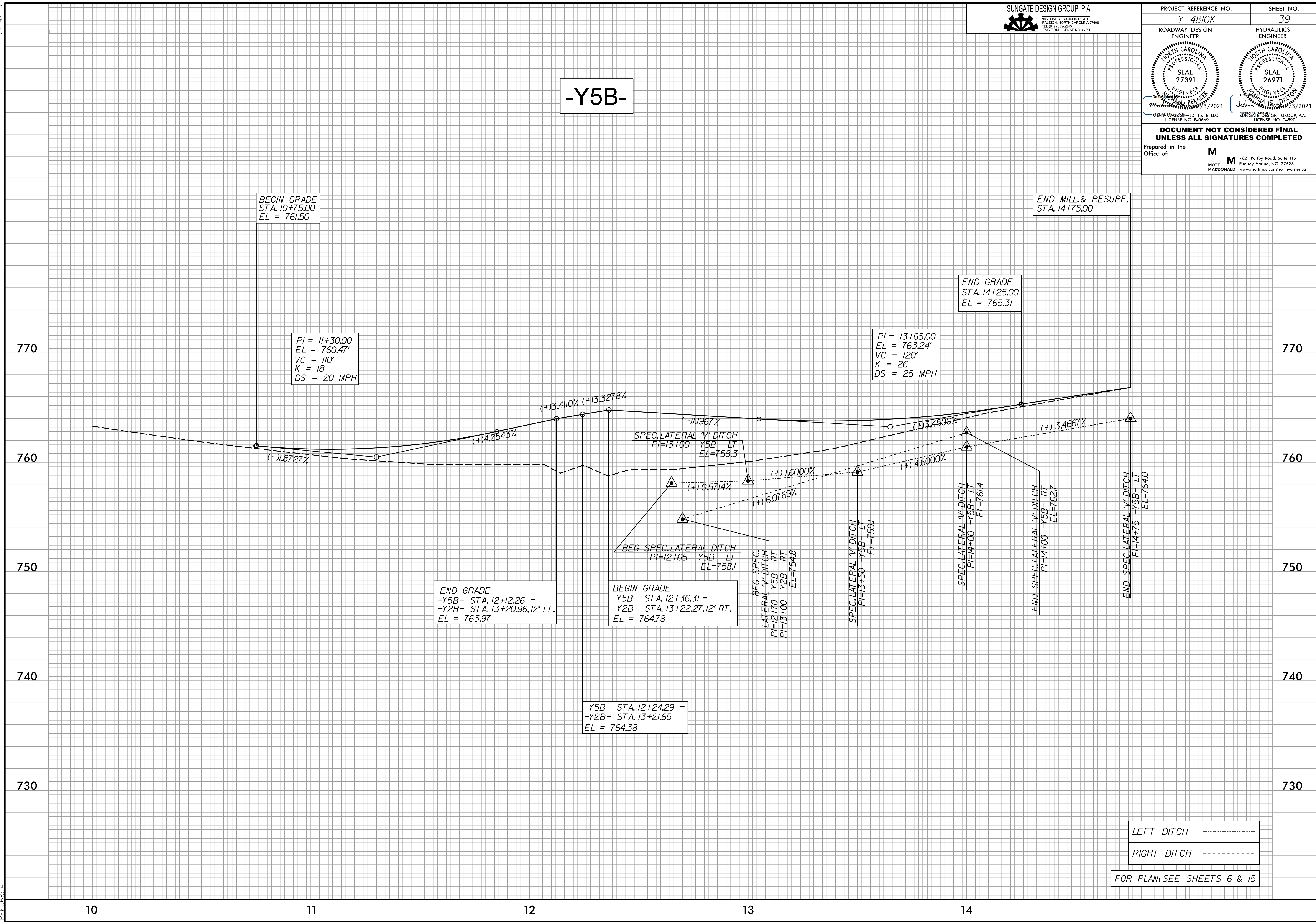
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PROJECT REFERENCE NO. Y-4810K	SHEET NO. 39
ROADWAY DESIGN ENGINEER SEAL 27391 MOTT MACDONALD 1 & E, LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER SEAL 26971 MOTT MACDONALD 1 & E, LLC LICENSE NO. C-890

-Y5B-

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LEFT DITCH - - - - -
RIGHT DITCH - - - - -
FOR PLAN: SEE SHEETS 6 & 15

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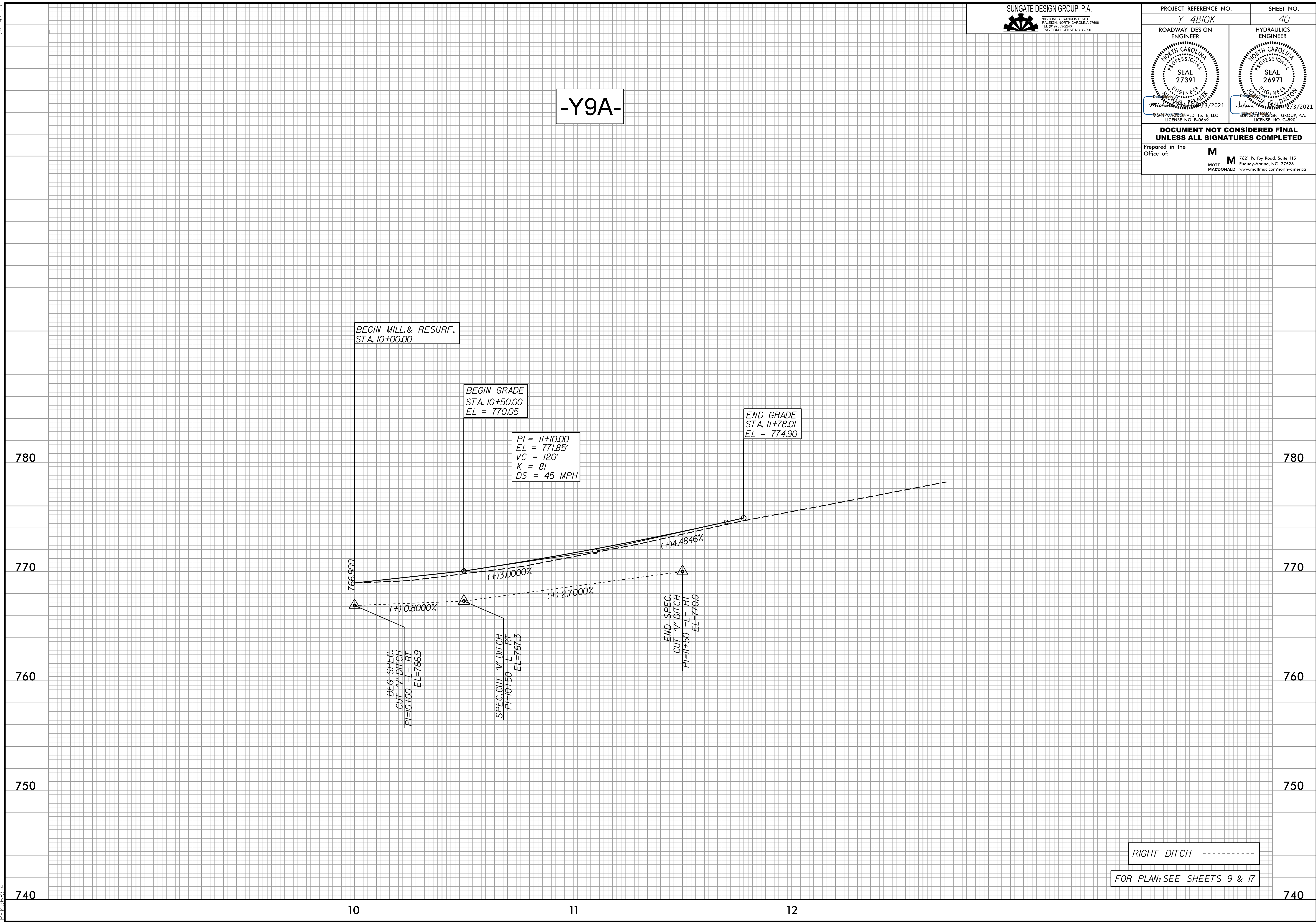
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PROJECT REFERENCE NO. Y-4810K	SHEET NO. 40
ROADWAY DESIGN ENGINEER SEAL 27391 MOTT MACDONALD 1 & E, LLC LICENSE NO. F-06697	HYDRAULICS ENGINEER SEAL 26971 MOTT MACDONALD 1 & E, LLC LICENSE NO. F-06697

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-Y9A-



RIGHT DITCH -----

FOR PLAN: SEE SHEETS 9 & 17

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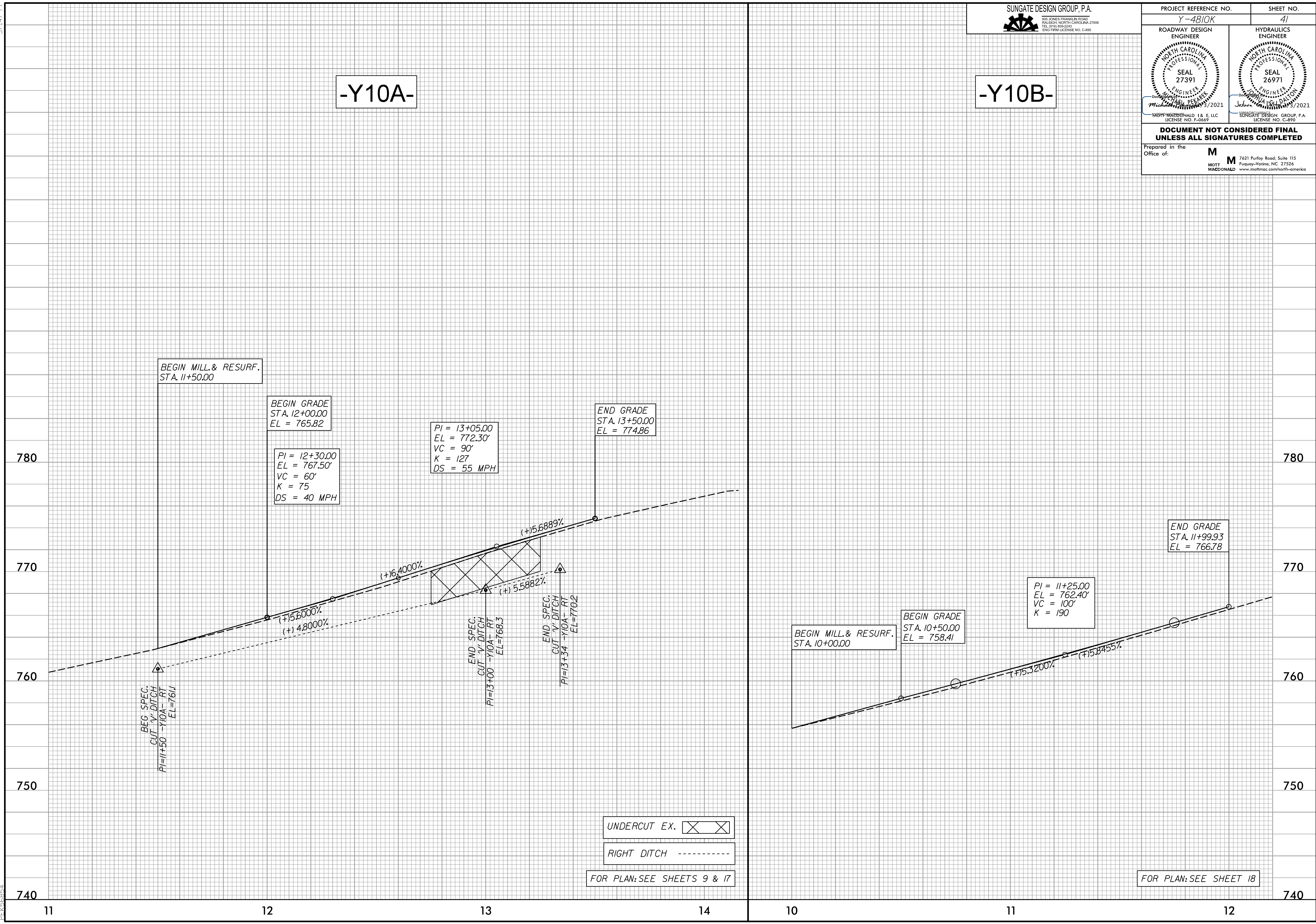
PROJECT REFERENCE NO. Y-4810K	SHEET NO. 41
ROADWAY DESIGN ENGINEER SEAL 27391 MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER SEAL 26971 MOTT MACDONALD I & E, LLC LICENSE NO. F-0669

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-Y10A-

-Y10B-



BEG. SPEC.
CUT 'V' DITCH
PI=11+50 RT
EL=761.1

(+)5.6000%
(+)4.8000%

(+)6.4000%

END. SPEC.
CUT 'V' DITCH
PI=13+00 RT
EL=768.3

END. SPEC.
CUT 'V' DITCH
PI=13+34 RT
EL=770.2

(+)5.5882%

(+)5.6889%

BEGIN MILL & RESURF.
STA. 10+00.00

BEGIN GRADE
STA. 10+50.00
EL = 758.41

(+)5.3200%

(+)5.8455%

END GRADE
STA. 11+99.93
EL = 766.78

UNDERCUT EX.

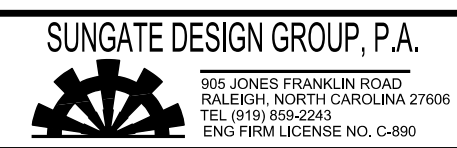
RIGHT DITCH

FOR PLAN: SEE SHEETS 9 & 17

FOR PLAN: SEE SHEET 18

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PEK:668874

5/14/99



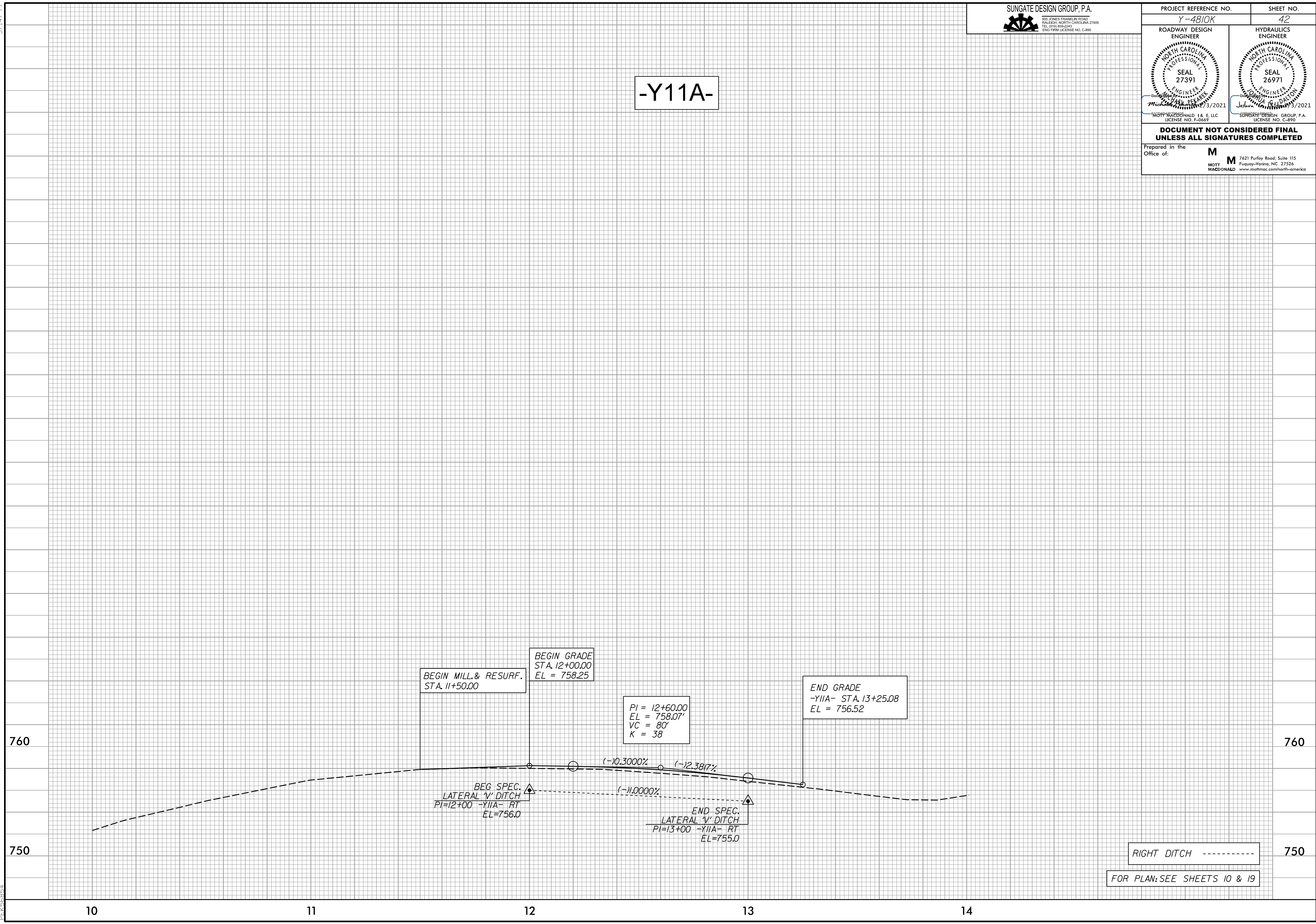
PROJECT REFERENCE NO. Y-4810K	SHEET NO. 42
ROADWAY DESIGN ENGINEER Michael Beckenkamp SEAL 27391 ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 3/2021	HYDRAULICS ENGINEER Joselyn Dalton SEAL 26971 ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 3/2021

-Y11A-

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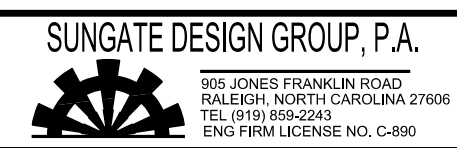
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PK:568874



RIGHT DITCH -----

FOR PLAN: SEE SHEETS 10 & 19

5/14/99



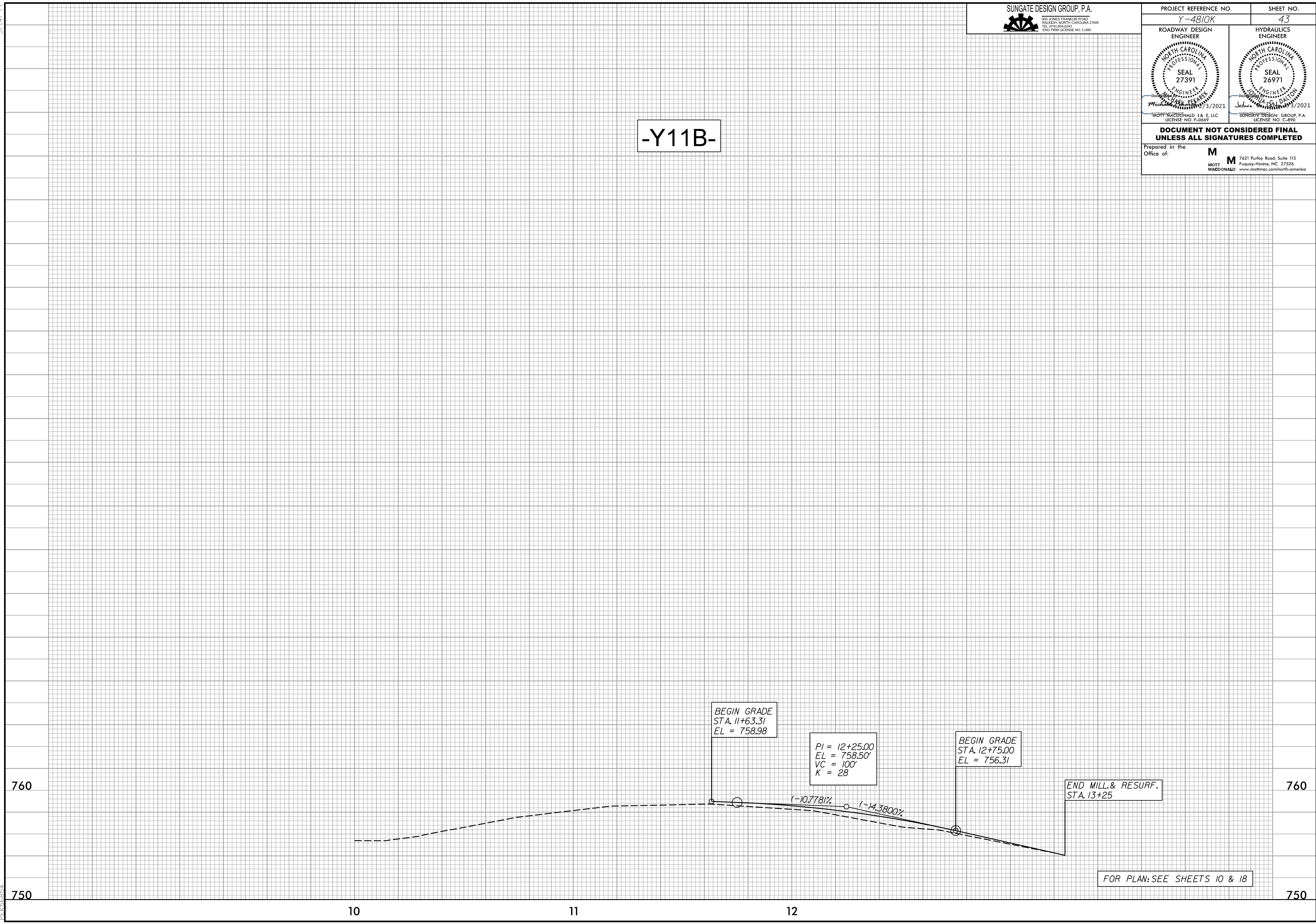
PROJECT REFERENCE NO. Y-4810K	SHEET NO. 43
ROADWAY DESIGN ENGINEER SEAL 27391 <i>Michael Bekasik</i> 3/2021	HYDRAULICS ENGINEER SEAL 26971 <i>Joseph Dalton</i> 3/2021

-Y11B-

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FOR PLAN: SEE SHEETS 10 & 18