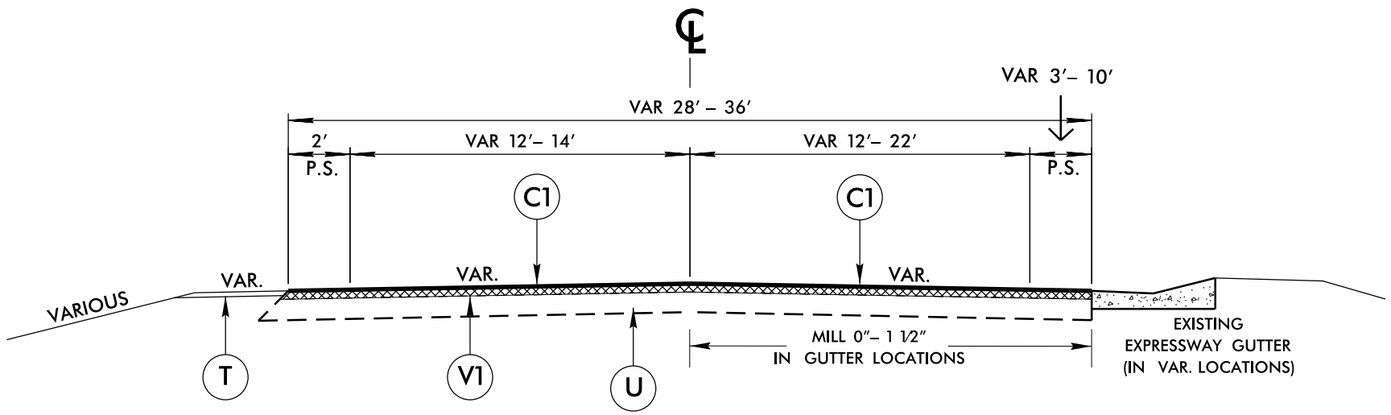
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
2018CPT.11.04.10951 2018CPT.11.04.20951	1 OF 4

* INCIDENTAL MILLING IN LOCATIONS AS DIRECTED BY ENGINEER

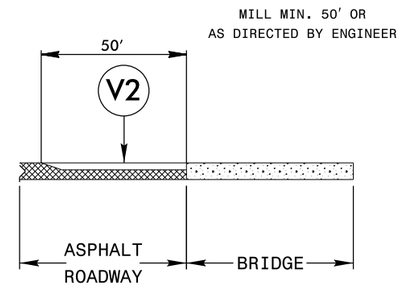
* MILL & REPLACE AT LOCATIONS AS DIRECTED BY ENGINEER AT APPROX. 20% OF ROADWAY SURFACE TO A DEPTH OF 1 1/2". THESE AREAS TO BE PAVED PRIOR TO OVERALL SURFACE REPAVING.

* SIGNAL DEVICES TO BE INSTALLED PRIOR TO FINAL RESURFACING



TYPICAL SECTION NO. 1

MAP 1 – US 221 FROM BEGIN MEDIAN TO SR 1416
MAP 2 – US 221 FROM SR 1674 TO SR 1672
MAP 4 – US 221 S FROM 1672 TO SR 1359
MAP 5 – US 221 S FROM SR 1674 TO END MEDIAN



BRIDGE TIE IN DETAIL

TIE ASPHALT OVERLAY TO BRIDGE APPROACH SLABS OR AS DIRECTED BY THE ENGINEER

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
T	SHOULDER RECONSTRUCTION
U	EXISTING PAVEMENT
V1	MILLING OF EXISTING ASPHALT PAVEMENT AT DEPTH OF 1½"
V2	MILLING OF EXISTING ASPHALT PAVEMENT AT DEPTH OF 0 - 1½"

AVERY AND WATAUGA COUNTIES
PRIMARY AND SECONDARY RESURFACING

DIVISION II

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION ELEVEN

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

SCALE: N/A	DATE: 02/2017
PREPARED BY: C.E. SHEETS	
REVIEWED BY:	
REVIEWED BY:	

PROJECT NO.	SHEET NO.	TOTAL NO.
2018CPT.11.04.10951		
2018CPT.11.04.20951		

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH MI	WIDTH FT	BORROW CY	INCIDENTAL STONE BASE TONS	SHOULDER RECONSTRUCTION SMI	1½" MILLING SY	0" TO 1.5" MILLING SY	INCIDENTAL MILLING SY	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, S9.5C TONS	SURFACE COURSE, SF9.5A TONS	ASPHALT BINDER FOR PLANT MIX TONS	FLOWABLE FILL CY	2'-6" CURB & GUTTER LF	4" CONCRETE SIDEWALK SY	WHEELCHAIR RAMPS EA	6" DRIVEWAYS SY	ADJ. OF MANHOLES EA	ADJ. OF METER OR VALVE BOX EA	SEED & MULCHING AC	PAVED TRENCHING LF	UNPAVED TRENCHING LF	JUNCTION BOX (STANDARD SIZE) EA	INDUCTIVE LOOP LF	LEAD-IN CABLE LF	JUNCTION BOX REPAIR/REPLACE EA
2018CPT.11.04.10951	Watauga	1	US HWY. 221 (SOUTH)	FROM BEG. MEDIAN TO SR1416	1	2	MD	1.58	36	130	50	2.80		6,000	6,200		3,613		213								1.60	100	100	1.00	100	100	
2018CPT.11.04.10951	Watauga	2	US HWY. 221 (SOUTH)	FROM SR1674 TO SR1672	1	2	MD	1.08	28	150	25	2.00		7,300	800		2,197		130								1.40						
2018CPT.11.04.10951	Watauga	3	US HWY 321	FROM US HWY. 221 TO US HWY. 421	2	2	MU	0.88	58				30,000				2,721		161	5.00	10	10.00	1	10	9	6		100	100	1.00	2,000	200	1.00
2018CPT.11.04.10951	Watauga	4	US HWY. 221 (NORTH)	FROM SR1672 TO SR1359	1	2	MD	1.4	30	250	25	2.80		7,000	400		2,778		164								1.70						
2018CPT.11.04.10951	Watauga	5	US HWY. 221 (NORTH)	FROM SR1674 TO END OF MEDIAN	1	2	MD	5.75	32	1,000	150	10.90		25,000	1,000		10,763		635								6.50	50	50	1.00	100	100	
2018CPT.11.04.10951	Watauga	6	NC HWY. 105	FROM SR1594 TO SR1580	3	2	2WU	2	27	400	100	4.00		3,200	1,100	3,123			187								1.90						
2018CPT.11.04.10951	Watauga	7	NC HWY. 105	FROM SR1580 TO SR1568	3	2	2WU	1.98	29	390	100	3.96		3,400	500	3,467			208								1.90						
TOTAL FOR PROJ NO. 2018CPT.11.04.10951								**14.67**		**2,320**	**450**	**26.46**	**30,000**	**51,900**	**10,000**	**6,590**	**22,072**		**1,698**	**5.00**	**10**	**10.00**	**1**	**10**	**9**	**6**	**15.00**	**250**	**250**	**3.00**	**2,200**	**400**	**1.00**
2018CPT.11.04.20951	Watauga	8	SR1416 (OLD US 421)	FROM SR 1416 TO US HWY. 221	4	2	2WU	1.97	22	394	100	3.90		2,500	200			2,390	160								1.85						
2018CPT.11.04.20951	Watauga	9	SR1552 (POPLAR GROVE SOUTH)	FROM SR1552 TO NC HWY105	5	2	2WU	1.16	22	200	75	2.30		3,100	400			1,417	95								1.12						
2018CPT.11.04.20951	Watauga	10	SR1672 (OLD US 421)	FROM BEG. 3 LANE TO END 3 LANE	6	2	MU	0.46	36	92	10	0.92		1,000	1,000			979	66								0.44						
2018CPT.11.04.20951	Watauga	11	SR1672 (OLD US 421)	FROM END 3 LANE TO SR1674	5	2	2WU	2.76	24	550	150	5.52		3,880	2,100			3,723	249								2.50						
TOTAL FOR PROJ NO. 2018CPT.11.04.20951								**6.35**		**1,236**	**335**	**12.64**		**10,480**	**3,700**			**8,509**	**570**								**5.91**						
GRAND TOTAL								**21.02**		**3,556**	**785**	**39.10**	**30,000**	**62,380**	**13,700**	**6,590**	**22,072**	**8,509**	**2,268**	**5.00**	**10**	**10.00**	**1**	**10**	**9**	**6**	**20.91**	**250**	**250**	**3.00**	**2,200**	**400**	**1.00**

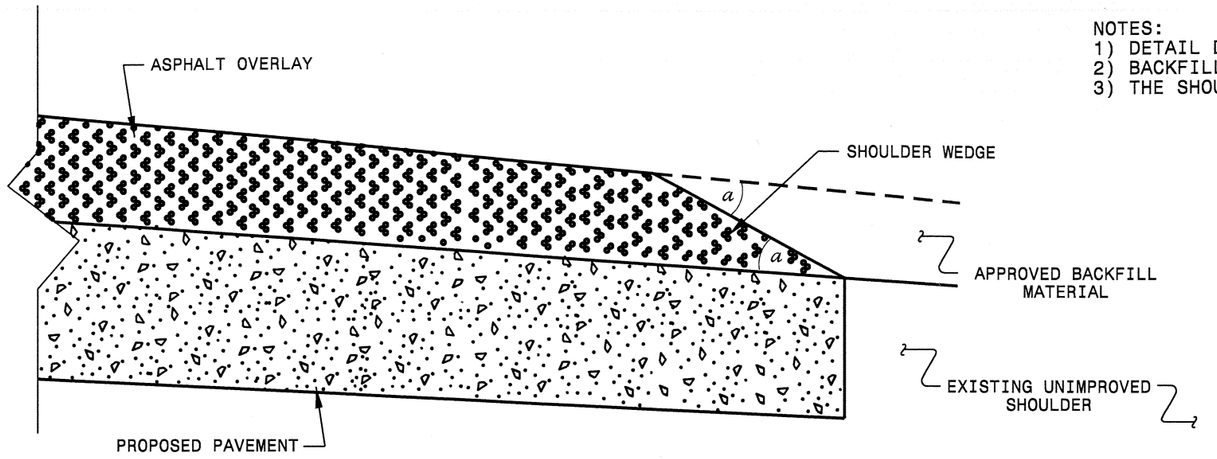
PROJECT NO.	SHEET NO.	TOTAL NO.
2018CPT.11.04.10951		
2018CPT.11.04.20951		

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4413000000-E WORK ZONE ADVANCE/GENERAL WARNING SIGNING SF	4457000000-N TEMPORARY TRAFFIC CONTROL LS	4810000000-E 4" WHITE PAINT LF	4810000000-E 4" YELLOW PAINT LF	4820000000-E 8" WHITE PAINT LF	4820000000-E 8" YELLOW PAINT LF	4825000000-E 12" WHITE PAINT LF	4835000000-E 24" WHITE PAINT LF	4840000000-N PAINT PAVEMENT MARKING CHARAC-TER EA	4840000000-N PAINT MSG SCHOOL EA	4845000000-N PAINT LT ARROW EA	4845000000-N PAINT RT ARROW EA	4845000000-N PAINT STR & LT ARROW EA	4845000000-N PAINT STR ARROW EA	4845000000-N PAINT BIKE DETECTOR SYM EA	4845000000-N PAINT STR & RT ARROW EA	4905000000-N SNOW PLOWABLE MARKERS EA
2018CPT.11.04.10951	Watauga	1	US HWY. 221 (SOUTH)	FROM BEG. MEDIAN TO SR1416	1	2	MD	1.58	36	96	1.00	34,000	800	800			120	11		9	4	1	4			90
2018CPT.11.04.10951	Watauga	2	US HWY. 221 (SOUTH)	FROM SR1674 TO SR1672	1	2	MD	1.08	28	72		28,500					50			6	1		6			80
2018CPT.11.04.10951	Watauga	3	US HWY 321	FROM US HWY. 221 TO US HWY. 421	2	2	MU	0.88	58	84		15,000	20,000			1,500				31	4		21	14	8	450
2018CPT.11.04.10951	Watauga	4	US HWY. 221 (NORTH)	FROM SR1672 TO SR1359	1	2	MD	1.4	30	84		33,750					80			8	1		8			95
2018CPT.11.04.10951	Watauga	5	US HWY. 221 (NORTH)	FROM SR1674 TO END OF MEDIAN	1	2	MD	5.75	32	425		130,500	400	400			168	11		30	12		25			375
2018CPT.11.04.10951	Watauga	6	NC HWY. 105	FROM SR1594 TO SR1580	3	2	2WU	2	27	96		43,000	43,000		400					3						140
2018CPT.11.04.10951	Watauga	7	NC HWY. 105	FROM SR1580 TO SR1568	3	2	2WU	1.98	29	96		43,100	41,000		400					4						180
TOTAL FOR PROJ NO. 2018CPT.11.04.10951								**14.67**		**953**	**1**	**327,850**	**105,200**	**1,200**	**800**	**1,500**	**418**	**22**		**91**	**22**	**1**	**64**	**14**	**8**	**1,410**
												433,050		**2,000**				**22**		**200**						
2018CPT.11.04.20951	Watauga	8	SR1416 (OLD US 421)	FROM SR 1416 TO US HWY. 221	4	2	2WU	1.97	22	96		40,000	40,000								2				2	252
2018CPT.11.04.20951	Watauga	9	SR1552 (POPLAR GROVE SOUTH)	FROM SR1552 TO NC HWY105	5	2	2WU	1.16	22	72		24,500	24,500													150
2018CPT.11.04.20951	Watauga	10	SR1672 (OLD US 421)	FROM BEG. 3 LANE TO END 3 LANE	6	2	MU	0.46	36	54		13,000	2,500		4,500					4						100
2018CPT.11.04.20951	Watauga	11	SR1672 (OLD US 421)	FROM END 3 LANE TO SR1674	5	2	2WU	2.76	24	200		58,000	50,000				172		12							365
TOTAL FOR PROJ NO. 2018CPT.11.04.20951								**6.35**		**422**		**135,500**	**117,000**		**4,500**		**172**		**12**	**4**	**2**				**2**	**867**
												252,500		**4,500**				**12**		**8**						
GRAND TOTAL								**21.02**		**1,375**	**1**	**463,350**	**222,200**	**1,200**	**5,300**	**1,500**	**590**	**22**	**12**	**95**	**24**	**1**	**64**	**14**	**10**	**2,277**
												685,550		**6,500**				**34**		**208**						

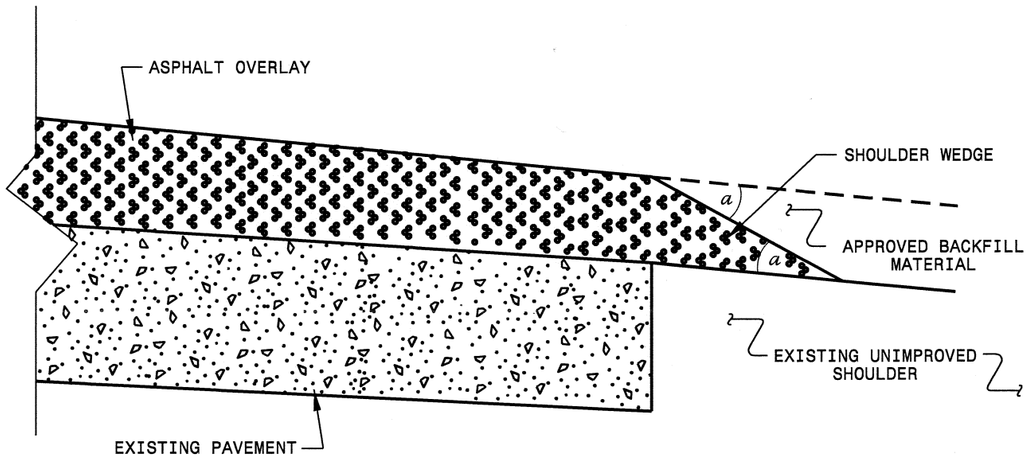
PROJECT REFERENCE NO.	SHEET NO.
	5

NOTES:
1) DETAIL DOES NOT APPLY TO OGAFC AND ULTRA-THIN BONDED WEARING COURSE.
2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



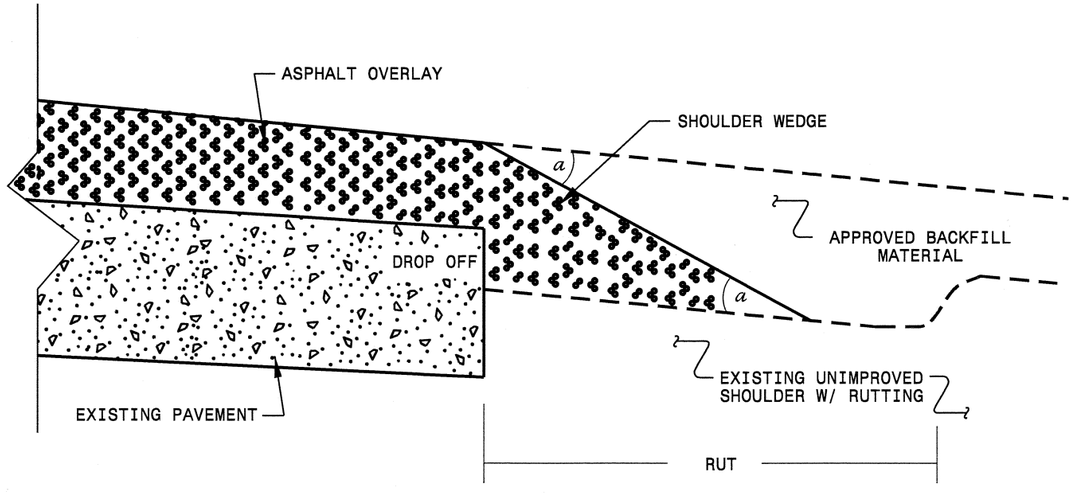
SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ Widening or with Existing Paved Shoulder having no dropoffs)



SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ NO Widening)



SHOULDER WEDGE DETAIL

(Resurfacing Adjacent to Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

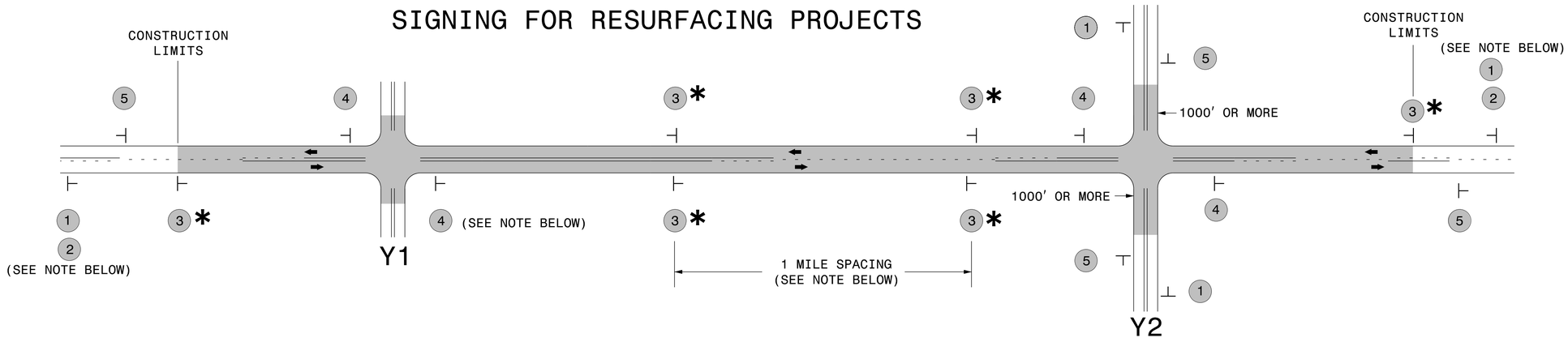
SHOULDER WEDGE DETAILS

ORIGINAL BY:	T.SPELL	DATE:	7-19-11
MODIFIED BY:		DATE:	10/16/12
CHECKED BY:		DATE:	
FILE SPEC.:	s:usr/details/stand/shoulderwedgedetail.dgn		

$$$$SYSTIME$$$$
$$$$BASENAME$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.

SIGNING FOR RESURFACING PROJECTS



LEGEND
- ⊢ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION

1	ROAD WORK AHEAD W20-1 48″ X 48″	PLACE 1000′ PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000′ ALONG -Y- LINE.
2	NEXT XX MILES W7-3aP 24″ X 18″	#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER.(NO FRACTIONAL OR DECIMAL NUMBERS)
3 *	LOW/SOFT SHOULDER SP 13107 48″ X 48″	PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET ½ MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.
4	ROAD UNDER CONST SP 13106 48″ X 48″	THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500′ +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500′ OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.
5	END ROAD WORK G20-2 A 48″ X 24″	PLACE 500′ FOLLOWING THE END OF CONSTRUCTION LIMITS.

-Y- LINE SIGNING

NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

1) LESS THAN 1000′ OF RESURFACING ALONG -Y- LINE
2) SUBDIVISION ROADS
3) DEAD END ROADS

WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.

ROAD WORK AHEAD W20-1 48″ X 48″ — PLACED 500′ IN ADVANCE OF FLAGGER.

W20-7 A 48″ X 48″ — PLACED 250′ IN ADVANCE OF FLAGGER.

* SIGNING FOR ASPHALT SURFACE TREATMENTS (ONLY)

SUBSTITUTE LOW/SOFT SHOULDER SIGNS BY ALTERNATING THE FOLLOWING TWO SIGNS:
STARTING WITH "UNMARKED PAVEMENT AHEAD" (SP 06026) FOLLOWED BY "LOOSE GRAVEL" (W8-7).

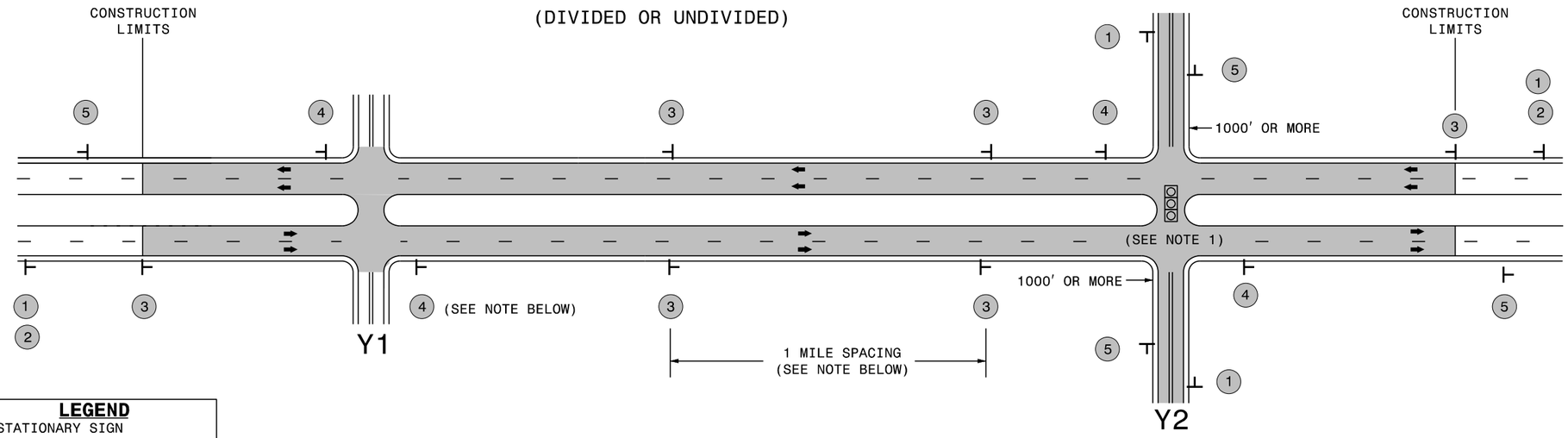
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

RESURFACING
ADVANCE WARNING SIGNS
FOR
RURAL AND SUBURBAN
2 LANE ROADWAYS

PROJ. REFERENCE NO.	SHEET NO.

SIGNING FOR RURAL AND SUBURBAN MULTI-LANE ROADWAYS WITH SHOULDER SECTIONS

(DIVIDED OR UNDIVIDED)



LEGEND

⊢ STATIONARY SIGN

⬅ DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION

1	ROAD WORK AHEAD W20-1 48″ X 48″	PLACE 1000′ PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000′ ALONG -Y- LINE.
2	NEXT XX MILES W7-3aP 24″ X 18″	#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER.(NO FRACTIONAL OR DECIMAL NUMBERS)
3	LOW/SOFT SHOULDER SP 13107 48″ X 48″	PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET ½ MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.
4	ROAD UNDER CONST SP 13106 48″ X 48″	THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500′ +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500′ OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.
5	END ROAD WORK G20-2 A 48″ X 24″	PLACE 500′ FOLLOWING THE END OF CONSTRUCTION LIMITS.

-Y- LINE SIGNING

NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

1) LESS THAN 1000′ OF RESURFACING ALONG -Y- LINE
2) SUBDIVISION ROADS
3) DEAD END ROADS

WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.

ROAD WORK AHEAD W20-1 48″ X 48″ — PLACED 500′ IN ADVANCE OF FLAGGER.

W20-7 A 48″ X 48″ — PLACED 250′ IN ADVANCE OF FLAGGER.

NOTES:

1) MAY USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AS DIRECTED BY THE ENGINEER. PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500′ IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION.

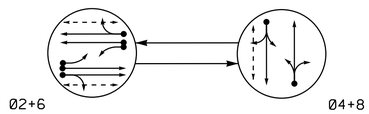
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

RESURFACING ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN MULTI-LANE ROADWAYS W/ SHOULDER SECTIONS (DIVIDED OR UNDIVIDED)

2/24/2014
S:\TMDW\ZTC\Resurfacing\2013Resurfacing\2013Documents\New_Procedures_05.09.2013\Resurfacing_AdvWarn_UrSu_Shldr.dgn
User:rmgarrett

PROJECT REFERENCE NO.	SHEET NO.
	Sig. 1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION			
SIGNAL FACE	PHASE Ø2+6	PHASE Ø4+8	FLASH
21,22	G	R	Y
41,42	R	G	R
61,62	G	R	Y
81,82	R	G	R
P21,P22	W	DW	DRK
P61,P62	W	DW	DRK
P81,P82	DW	W	DRK

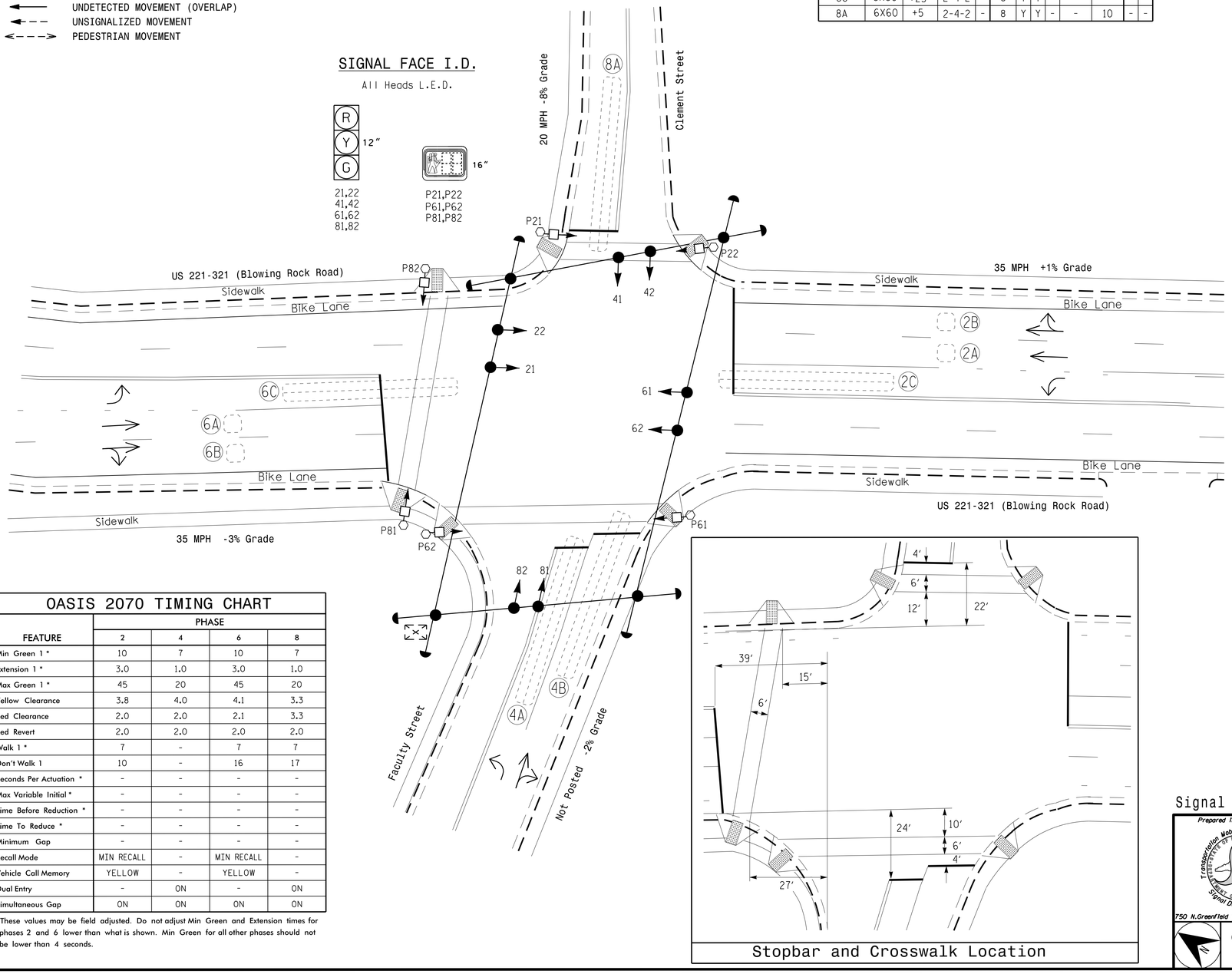
SIGNAL FACE I.D.

All Heads L.E.D.

21,22
41,42
61,62
81,82

P21,P22
P61,P62
P81,P82

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART											
INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	70	4	-	2	Y	Y	-	-	-	-	-
2B	6X6	70	4	-	2	Y	Y	-	-	-	-	-
2C	6X60	+5	2-4-2	-	2	Y	Y	-	-	-	-	-
4A	6X60	+5	2-4-2	-	4	Y	Y	-	-	3	-	-
4B	6X60	+5	2-4-2	-	4	Y	Y	-	-	10	-	-
6A	6X6	70	3	-	6	Y	Y	-	-	-	-	-
6B	6X6	70	3	-	6	Y	Y	-	-	-	-	-
6C	6X60	+25	2-4-2	-	6	Y	Y	-	-	-	-	-
8A	6X60	+5	2-4-2	-	8	Y	Y	-	-	10	-	-



OASIS 2070 TIMING CHART				
FEATURE	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Min Green 1 *	10	7	10	7
Extension 1 *	3.0	1.0	3.0	1.0
Max Green 1 *	45	20	45	20
Yellow Clearance	3.8	4.0	4.1	3.3
Red Clearance	2.0	2.0	2.1	3.3
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	7	-	7	7
Don't Walk 1	10	-	16	17
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Stopbar and Crosswalk Location

2 Phase
Fully Actuated
Isolated

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
5. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
6. Existing Yellow Change Interval for all phases may be decreased by .5 seconds per week until the required value is reached.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type II Signal Pedestal	

Signal Upgrade

Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 221-321 (Blowing Rock Road)
at
Faculty Street/
Clement Street

Division 11 Watauga County Boone

PLAN DATE: June 2015 REVIEWED BY:

PREPARED BY: C. Pierce REVIEWED BY:

SCALE 0 20 1"=20'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY M. LITTLE

DocuSigned by: Zachary M. Little 6/10/2015
DC21EFD94F5341F... DATE

SIG. INVENTORY NO. II-0022

10:JUN:2015 10:10
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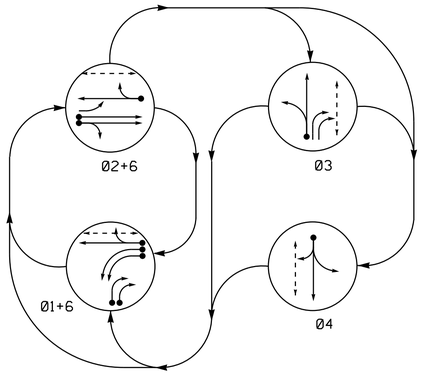
capierce

PROJECT REFERENCE NO.	SHEET NO.
POR	Sig. 1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

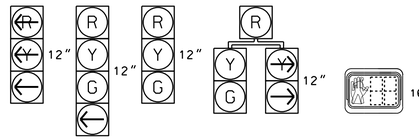
TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	Ø2+6	Ø3	Ø4	FLASH
11,12	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
21,22	R	G	R	R	Y
31	R	R	G	R	R
32,33	R	R	G	R	R
41	R	R	R	G	R
42,43	R	R	R	G	R
61,62	G	G	R	R	Y
P31,P32	DW	DW	W	DW	DRK
P41,P42	DW	DW	DW	W	DRK
P61,P62	W	W	DW	DW	DRK

W - Walk
DW - Don't Walk
DRK - Dark

SIGNAL FACE I.D.

ALL HEADS L.E.D.



11,12 | 31, 41 | 21,22, 42,43, 61,62 | 32,33 | P31,P32, P41,P42, P61,P62

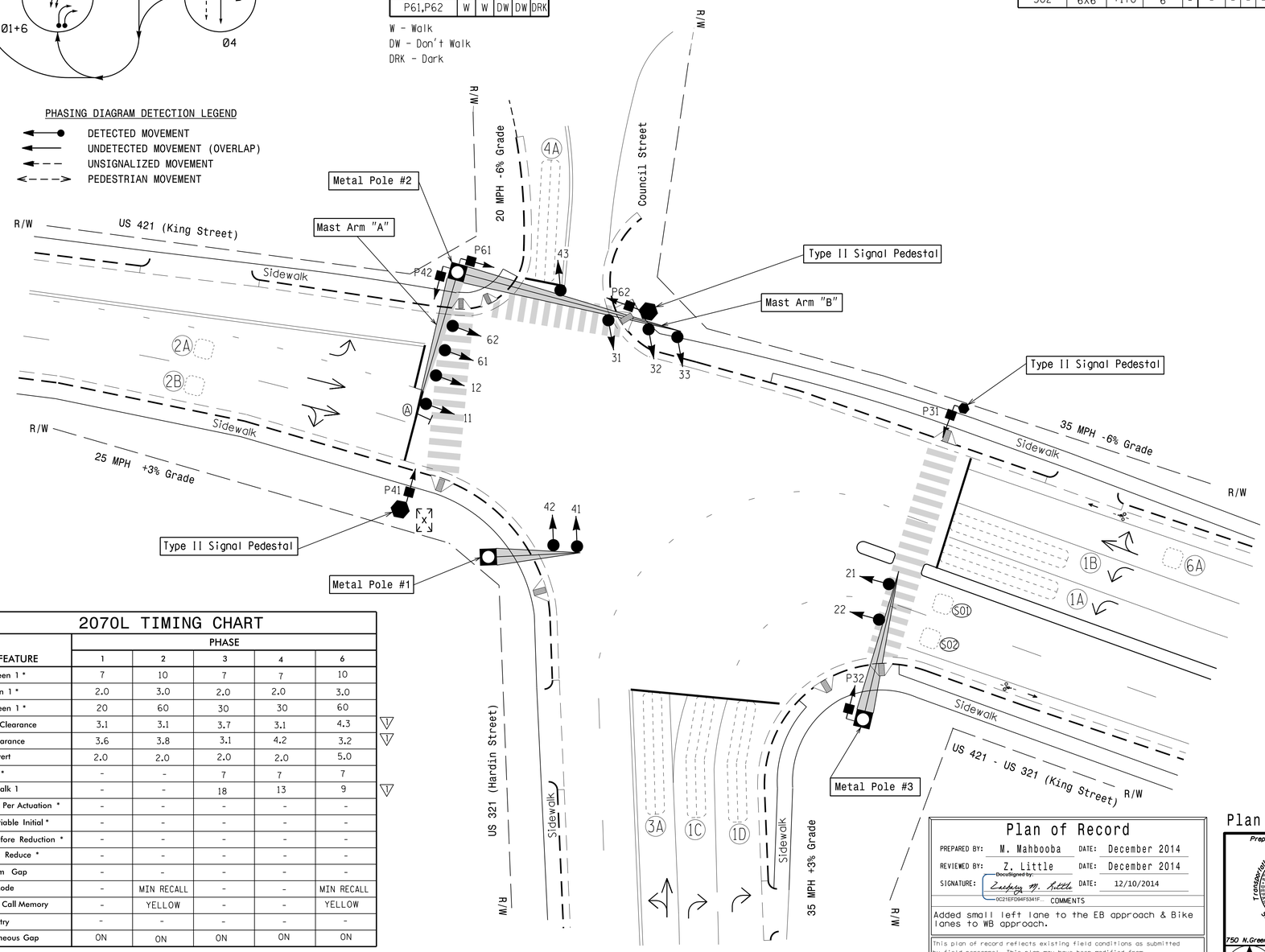
2070L LOOP & DETECTOR INSTALLATION

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	-	1	Y	Y	-	-	-	-	-
1B	6X40	0	2-4-2	-	1	Y	Y	-	-	-	-	-
1C	6X40	0	2-4-2	-	1	Y	Y	-	-	15	-	-
1D	6X40	0	2-4-2	-	1	Y	Y	-	-	15	-	-
2A,2B	6X6	70	6	-	2	Y	Y	-	-	-	-	-
3A	6X40	0	2-4-2	-	3	Y	Y	-	-	-	-	-
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	5	-	-
6A	6X6	70	6	-	6	Y	Y	-	-	-	-	-
SO1	6X6	+170	6	-	-	-	-	-	-	-	Y	-
SO2	6X6	+170	6	-	-	-	-	-	-	-	Y	-

4 Phase
Fully Actuated
US 421 (King Street) CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Enable Backup Protect for phase 6 to allow the controller to clear from phase 2+6 to phase 1+6 by progressing through an all red display.
4. The order of phase 3 and phase 4 may be reversed.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Closed loop system data: Controller Asset #0885.



2070L TIMING CHART

FEATURE	PHASE 1	2	3	4	6	
Min Green 1 *	7	10	7	7	10	
Extension 1 *	2.0	3.0	2.0	2.0	3.0	
Max Green 1 *	20	60	30	30	60	
Yellow Clearance	3.1	3.1	3.7	3.1	4.3	▽
Red Clearance	3.6	3.8	3.1	4.2	3.2	▽
Red Revert	2.0	2.0	2.0	2.0	5.0	
Walk 1 *	-	-	7	7	7	
Don't Walk 1	-	-	18	13	9	▽
Seconds Per Actuation *	-	-	-	-	-	
Max Variable Initial *	-	-	-	-	-	
Time Before Reduction *	-	-	-	-	-	
Time To Reduce *	-	-	-	-	-	
Minimum Gap	-	-	-	-	-	
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	
Dual Entry	-	-	-	-	-	
Simultaneous Gap	ON	ON	ON	ON	ON	

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊤	Sign	⊤
▭↓	Pedestrian Signal Head With Push Button & Sign	■↓
○	Signal Pole with Guy	●
○~	Signal Pole with Sidewalk Guy	●~
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	□
·····	2-in Underground Conduit	·····
N/A	Right of Way	——
→	Directional Arrow	→
⬡	Type II Signal Pedestal	⬢
○	Metal Pole with Mastarm	●
Ⓐ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓐ

REVISION ▽ SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY M. LITTLE

DocuSigned by: Zachary M. Little 12/10/2014 DATE
0C21EFD94F5341F...

Plan of Record

PREPARED BY:	M. Mahbooba	DATE:	December 2014
REVIEWED BY:	Z. Little	DATE:	December 2014
SIGNATURE:	DocuSigned by: Zachary M. Little 0C21EFD94F5341F...	DATE:	12/10/2014

COMMENTS

Added small left lane to the EB approach & Bike lanes to WB approach.

This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

Plan Of Record

Prepared In the Offices of:
Transportation Mobility and Safety Division
Traffic Engineering Branch
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 421 - US 321 (King Street) at US 321 (Hardin Street)/ Council Street

Division 11 Watauga County Boone

PLAN DATE: September 2008 REVIEWED BY:

PREPARED BY: Jerry Yaravitz REVIEWED BY:

REVISIONS	INIT.	DATE
▽ Adjust clearance & Pedestrian times.	ZMA	12/10/14

N

SCALE 0 20 1"=20'

Not a certified document. This document originally Issued and sealed by Zachary M.Little,PE 030530 on 12/16/2008 This document shall not be considered a certified document.

SIG. INVENTORY NO. 11-0885

10-DEC-2014 14:32
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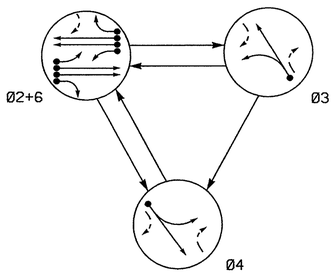
mmahbooba

PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

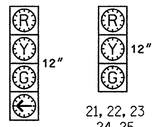
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+6	Ø3	Ø4	FLASH
21, 22, 23	G	R	R	Y
24, 25	G	R	R	Y
31	R	G	R	R
32, 33	R	G	R	R
41	R	R	G	R
42, 43	R	R	G	R
61, 62, 63	G	R	R	Y
64, 65	G	R	R	Y

SIGNAL FACE I.D.

Denotes L.E.D.



31
41

21, 22, 23
24, 25
32, 33
42, 43
61, 62, 63
64, 65

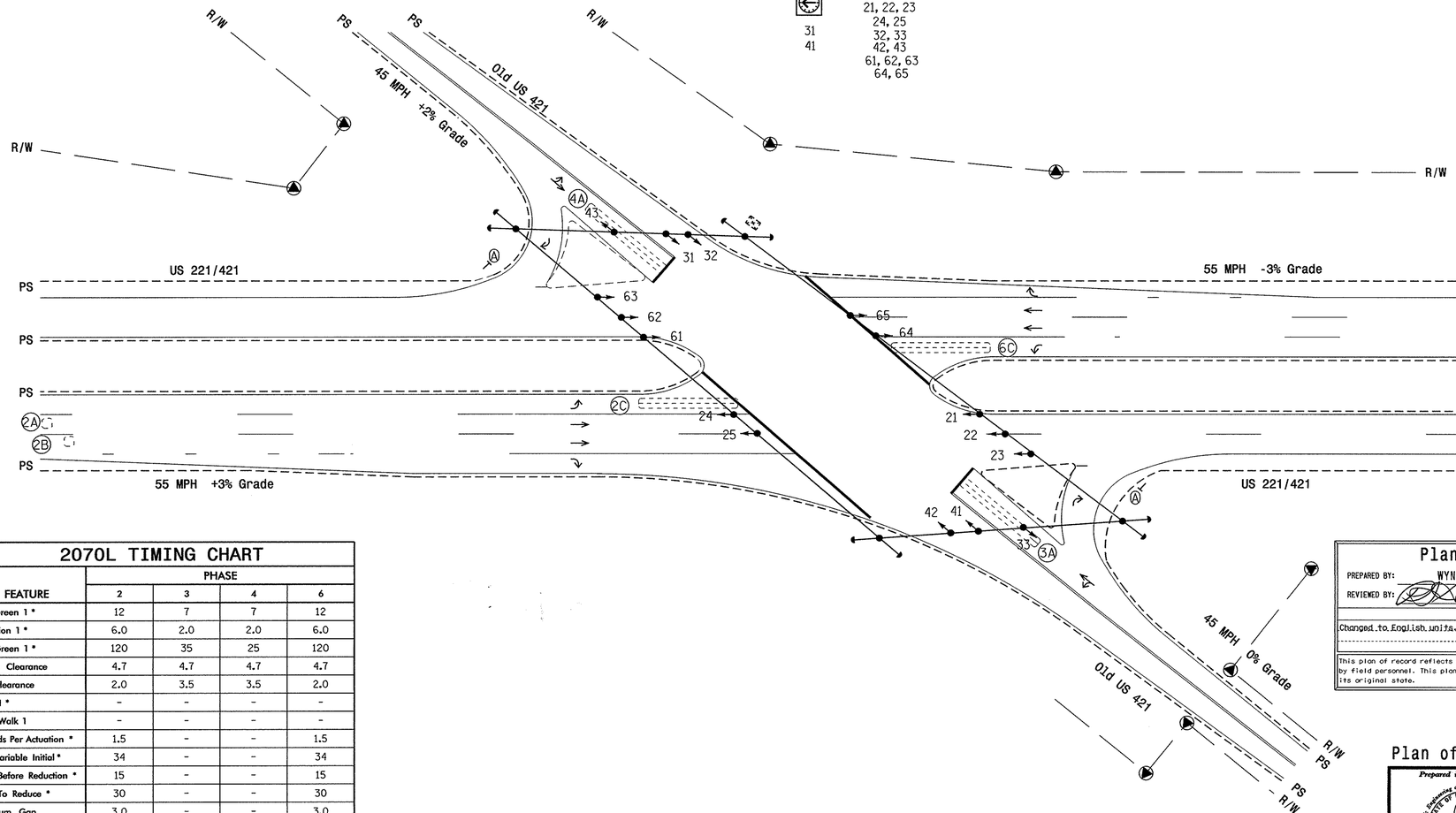
2070L LOOP & DETECTOR INSTALLATION

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	420	6	—	2	Y	Y	—	——	——	—	—
2B	6X6	420	6	—	2	Y	Y	—	——	——	—	—
2C	6X60	0	2-4-2	—	2	Y	Y	Y	——	3	—	—
3A	6X60	0	2-4-2	—	3	Y	Y	—	——	3	—	—
4A	6X60	0	2-4-2	—	4	Y	Y	—	——	3	—	—
6A	6X6	420	4	—	6	Y	Y	—	——	——	—	—
6B	6X6	420	4	—	6	Y	Y	—	——	——	—	—
6C	6X60	0	2-4-2	—	6	Y	Y	Y	——	3	—	—

3 Phase
Fully Actuated
(Isolated)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Pavement markings are existing.



2070L TIMING CHART

FEATURE	PHASE 2	3	4	6
Min Green 1 *	12	7	7	12
Extension 1 *	6.0	2.0	2.0	6.0
Max Green 1 *	120	35	25	120
Yellow Clearance	4.7	4.7	4.7	4.7
Red Clearance	2.0	3.5	3.5	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	1.5	-	-	1.5
Max Variable Initial *	34	-	-	34
Time Before Reduction *	15	-	-	15
Time To Reduce *	30	-	-	30
Minimum Gap	3.0	-	-	3.0
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Plan of Record

PREPARED BY:	WYNN	DATE:	SEPT. 2008
REVIEWED BY:		DATE:	11/15/08

COMMENTS

Changed to English units. Updated timing chart info.

This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Pavement Marking Arrow	
(A)	"YIELD" Sign (R1-2)	(A)

Plan of Record

Prepared in the Offices of:
Traffic Engineering and Safety Systems Branch
North Carolina Department of Transportation
Signals and Geometrics Section
750 N. Greenfield Pkwy, Garner, NC 27529

US 221/421 at Old US 421

Division 11 Watauga County Deep Gap

PLAN DATE:	July 2003	REVIEWED BY:	
PREPARED BY:	RN Mouberry	REVIEWED BY:	

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

Not a certified document. This document originally issued and sealed by Tim Williams, PE, 24393 on 8-27-03. This document shall not be considered a certified document.

SIG. INVENTORY NO. 11-1386

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PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM

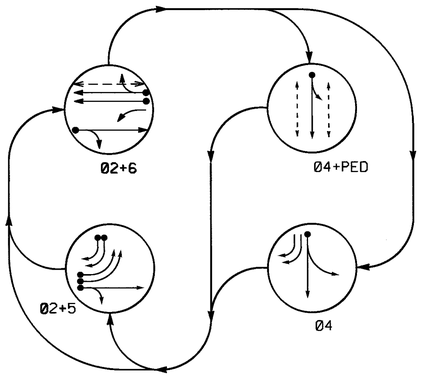
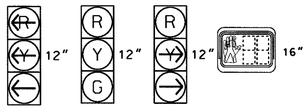


TABLE OF OPERATION					
SIGNAL FACE	PHASE				
	02+5	02+6	04+PED	04	FLASH
21, 22	G	G	R	R	Y
41	R	R	G	G	R
42,43	→	R	R	→	R
51, 52	←	~~R~~	~~R~~	~~R~~	~~R~~
61, 62	R	G	R	R	Y
P41, P42	DW	DW	W	DW	DRK
P43, P44	DW	DW	W	DW	DRK
P61, P62	DW	W	DW	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



51,52 | 21,22 41 61,62 | 42,43 | P41,P42 P43,P44 P61,P62

PHASING DIAGRAM DETECTION LEGEND

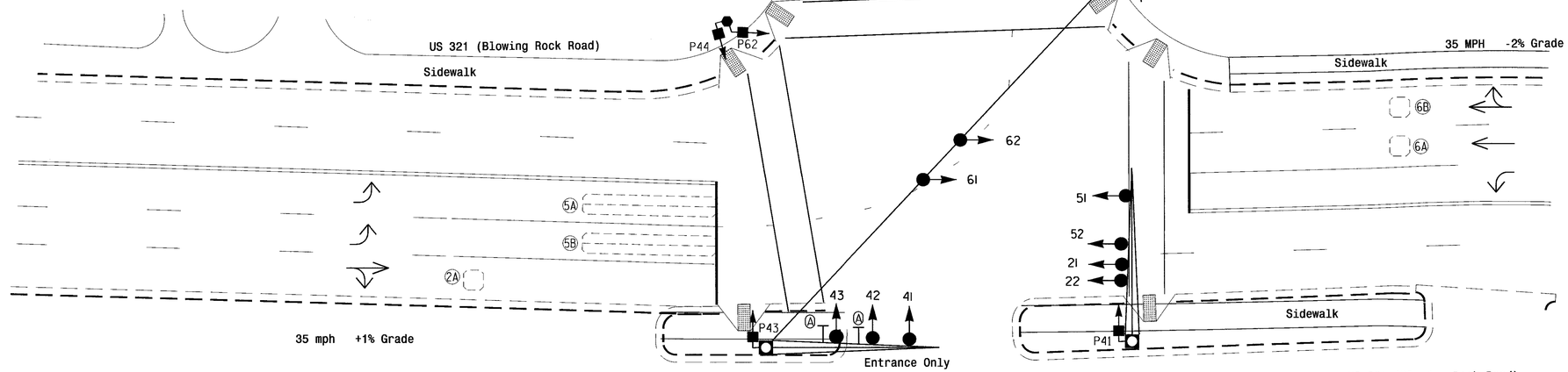
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART												
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	70	4	-	2	Y	Y	-	-	-	-	-
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	-	-	-
5A,5B	6X40	0	2-4-2	-	5	Y	Y	-	-	-	-	-
5C	6X40	0	2-4-2	-	5	Y	Y	-	-	5	-	-
5D	6X40	0	2-4-2	-	5	Y	Y	-	-	15	-	-
6A, 6B	6X6	70	4	-	6	Y	Y	-	-	-	-	-

4 Phase
Fully Actuated
Isolated

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Omit phase 5 during phase 6 on.
4. Program controller to clear from phase 2+6 to phase 2+5 by progressing through phase 4 (see Electrical Details).
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Pavement markings are existing.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
▯↓	Pedestrian Signal Head With Push Button & Sign	■↓
○⤵	Signal Pole with Guy	●⤵
○⤵	Signal Pole with Sidewalk Guy	●⤵
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
------	2-in Underground Conduit	------
N/A	Right of Way	----------
→	Directional Arrow	→
Ⓐ	Right Arrow "ONLY" Sign (R3-5R)	Ⓐ
⊂⊃	Metal Pole with Mastarm	⊂⊃

OASIS 2070L TIMING CHART					
FEATURE	PHASE				
	2	4	4+PED	5	6
Min Green 1 *	10	7	7	7	10
Extension 1 *	3.0	2.0	2.0	2.0	3.0
Max Green 1 *	30	30	30	30	30
Yellow Clearance	3.8	3.1	3.1	3.0	4.0
Red Clearance	2.3	3.0	3.0	3.5	2.5
Red Revert	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	7	-	7
Don't Walk 1	-	-	19	-	24
Walk Advance	-	-	4	-	-
Seconds Per Actuation *	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-
Time To Reduce *	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Recall Mode	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	-	YELLOW
Dual Entry	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Plan of Record

PREPARED BY:	B.E. Wynn	DATE:	July 2013
REVIEWED BY:	Z.M. Little	DATE:	July 2013
SIGNATURE:		DATE:	7/18/13

COMMENTS

Changed loops 4A, 5A, 5B, 5C, & 5D to 6'x40' quads. Set extension on phase 4 & 5 to 2 sec.

This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

Plan of Record

Prepared in the Offices of,
Transportation Mobility and Safety Division
Traffic Engineering Branch
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 321 (Blowing Rock Road) at SR 1163 (New Rivers Street)

Division 11 Watauga County Boone

PLAN DATE: June 2010 REVIEWED BY:

PREPARED BY: C. L. Carper REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 20 1"=20'

Not a certified document. This document originally Issued and sealed by Zachary M.Little,PE #30530 on July 12,2010 This document shall not be considered a certified document.

SIG. INVENTORY NO. 11-1308

18-JUL-2013 12:13
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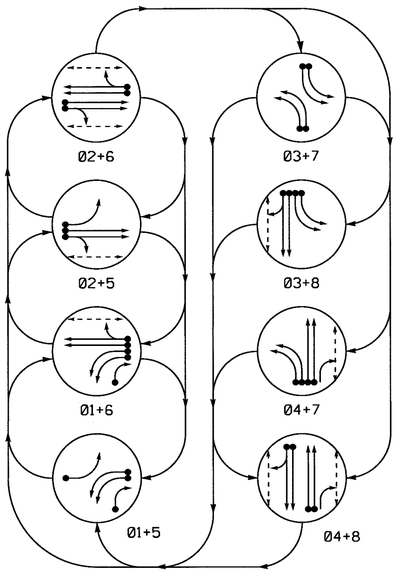
bwynn

PROJECT REFERENCE NO.	SHEET NO.
N/A	Sig. 1

8 Phase
Fully Actuated
US 321 Boone Closed Loop System

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

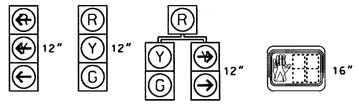
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 01+5	01+6	02+5	02+6	03+7	03+8	04+7	04+8	FLASH
11,12	←	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
21,22	R	R	G	G	R	R	R	R	Y
31,32	~~R~~	~~R~~	~~R~~	~~R~~	←	←	~~R~~	~~R~~	~~R~~
41	R	R	R	R	R	R	G	G	R
42	R/~~R~~	R/~~R~~	R	R	R	R	G	G	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
61,62	R	G	R	G	R	R	R	R	Y
71,72	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~	←	~~R~~	~~R~~
81,82	R	R	R	R	R	G	R	G	R
P21,P22	DW	DW	W	W	DW	DW	DW	DW	DRK
P41,P42	DW	DW	DW	DW	DW	DW	W	W	DRK
P61,P62	DW	W	DW	W	DW	DW	DW	DW	DRK
P81,P82	DW	DW	DW	DW	DW	W	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



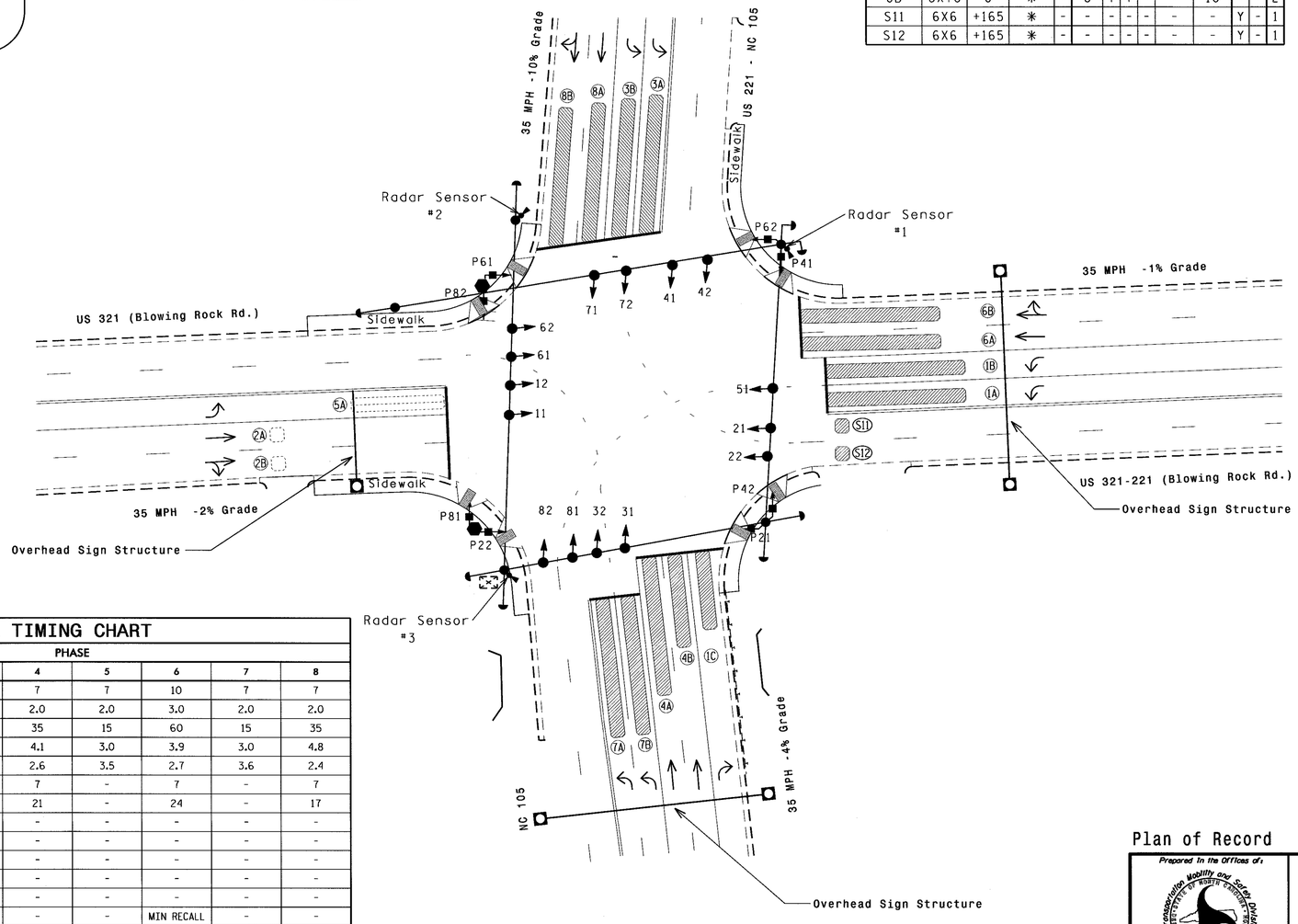
11, 12	21, 22	42	P21, P22
31, 32	41		P41, P42
51	61, 62		P61, P62
71, 72	81, 82		P81, P82

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD	Sensor No.
1A	6X70	0	*	-	1	Y	Y	-	-	3	-	-	1
1B	6X70	0	*	-	1	Y	Y	-	-	-	-	-	1
1C	6X34	0	*	-	1	Y	Y	-	-	15	-	-	3
2A,2B	6X6	70	3	-	2	Y	Y	-	-	-	-	-	-
3A	6X70	0	*	-	3	Y	Y	-	-	3	-	-	2
3B	6X70	0	*	-	3	Y	Y	-	-	-	-	-	2
4A	6X60	0	*	-	4	Y	Y	-	-	-	-	-	3
4B	6X44	0	*	-	4	Y	Y	-	-	-	-	-	3
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	3	-	-	-
6A	6X70	0	*	-	6	Y	Y	-	-	-	-	-	1
6B	6X70	0	*	-	6	Y	Y	-	-	-	-	-	1
7A	6X70	0	*	-	7	Y	Y	-	-	3	-	-	3
7B	6X70	0	*	-	7	Y	Y	-	-	-	-	-	3
8A	6X70	0	*	-	8	Y	Y	-	-	-	-	-	2
8B	6X70	0	*	-	8	Y	Y	-	-	10	-	-	2
S11	6X6	+165	*	-	-	-	-	-	-	-	Y	-	1
S12	6X6	+165	*	-	-	-	-	-	-	-	Y	-	1

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 or phase 5 may be lagged.
4. Phase 3 or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Closed loop system data: Controller Asset #: 0883.



OASIS 2070L TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	10	7	7	7	10	7	7
Extension 1 *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max Green 1 *	25	60	25	35	15	60	15	35
Yellow Clearance	3.0	4.0	3.4	4.1	3.0	3.9	3.0	4.8
Red Clearance	3.9	2.8	3.4	2.6	3.5	2.7	3.6	2.4
Walk 1 *	-	7	-	7	-	7	-	7
Don't Walk 1	-	24	-	21	-	24	-	17
Seconds Per Actuation *	-	-	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Plan of Record

PREPARED BY:	N. D'Aiuto	DATE:	June 2012
REVIEWED BY:	P.L. Alexander	DATE:	October 2012
SIGNATURE:		DATE:	10/2/12

COMMENTS

Added Radar Sensor Information

This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head With Push Button & Sign	■↓
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
----	2-in Underground Conduit	----
N/A	Right of Way	----
→	Directional Arrow	→
⬡	Pedestrian Signal Pedestal	⬢
⋈	Radar Sensor	⋈
▨	Radar Detection Zone	▨

Plan of Record

Prepared in the Offices of:
Transportation Mobility and Safety Division
Traffic Engineering Branch
Signal Design Section
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N.Greenfield Pkwy.Garner,NC 27529

US 321 / US 321 - 221 (Blowing Rock Road) at US 221-NC 105 / NC 105

Division 11 Watauga County Boone

PLAN DATE:	April 2011	REVIEWED BY:	
PREPARED BY:	B.E. Wynn	REVIEWED BY:	

REVISIONS	INIT.	DATE

SCALE 0 30 1"=30'

Not a certified document. This document originally issued and sealed by Zachary M.Little,PE #30530 on June 6,2011 This document shall not be considered a certified document.

SIG. INVENTORY NO. 11-0883

02-OCT-2012 09:06
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