APPENDIX D

ACCIDENT INFORMATION

Contents:

Accident Type Symbol List
Accident Diagrams
State Wide Accident Rates
Accident Rate Computations

PROJECT SCOPING REPORT

CODDINGTON ROAD
(COUNTY ROUTE 119)

DANBY TOWN LINE TO CITY OF ITHACA LINE

TOWN OF ITHACA
TOMPKINS COUNTY, NEW YORK

NYSDOT PIN 3753.24

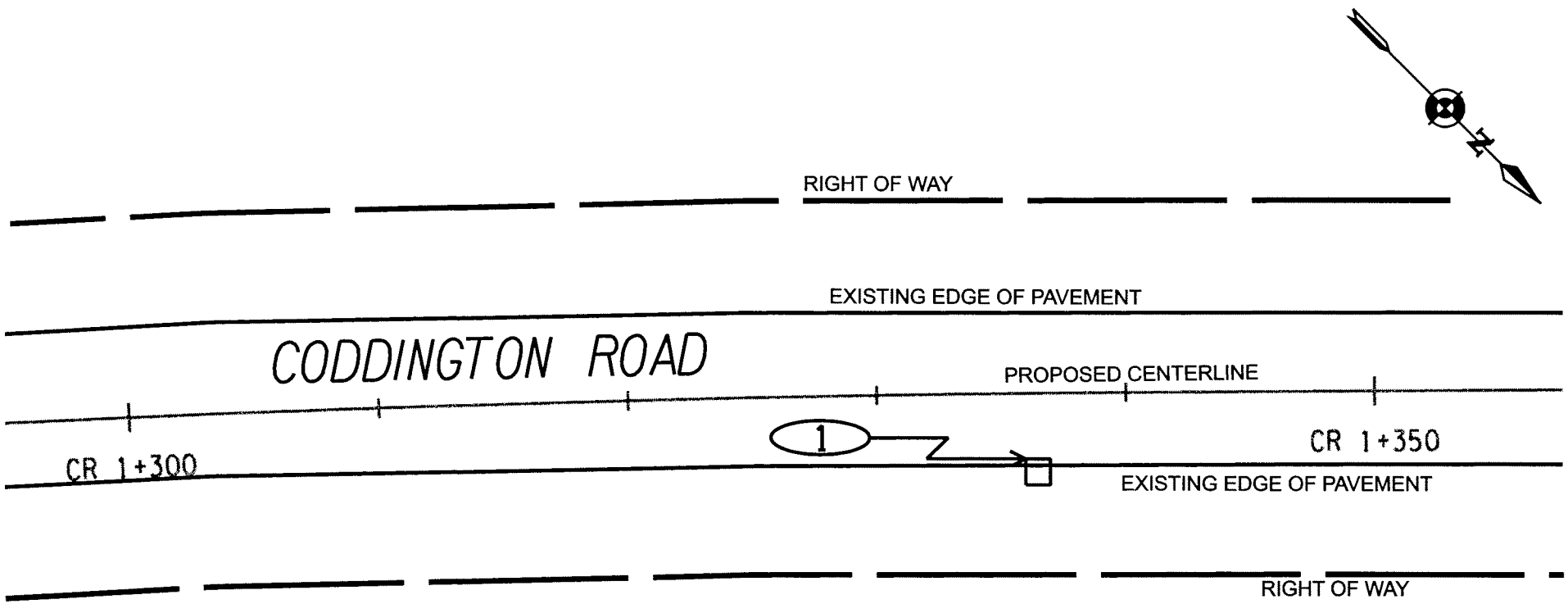
DECEMBER 2005

	MOVING VEHICLE		OUT OF CONTROL
M	MOTORCYCLE		SKIDDING
	BACKING VEHICLE		OVERTAKING
	STOPPED VEHICLE		HEAD-ON
	PARKED VEHICLE		LEFT TURN (TYPE 1)
	PEDESTRIAN		LEFT TURN (TYPE 2)
B	BICYCLE		LEFT TURN (TYPE 3)
	FIXED OBJECT		LEFT TURN (TYPE 4)
	TREE		RIGHT TURN (TYPE 1)
A	ANIMAL		RIGHT TURN (TYPE 2)
	PERSONAL INJURY		RIGHT ANGLE
	FATAL ACCIDENT		
	REAR-ENDED	23	ACCIDENT KEY NUMBER
	SIDE-SWIPE		

Dewberry

Dewberry-Goodkind, Inc.
Rochester, New York

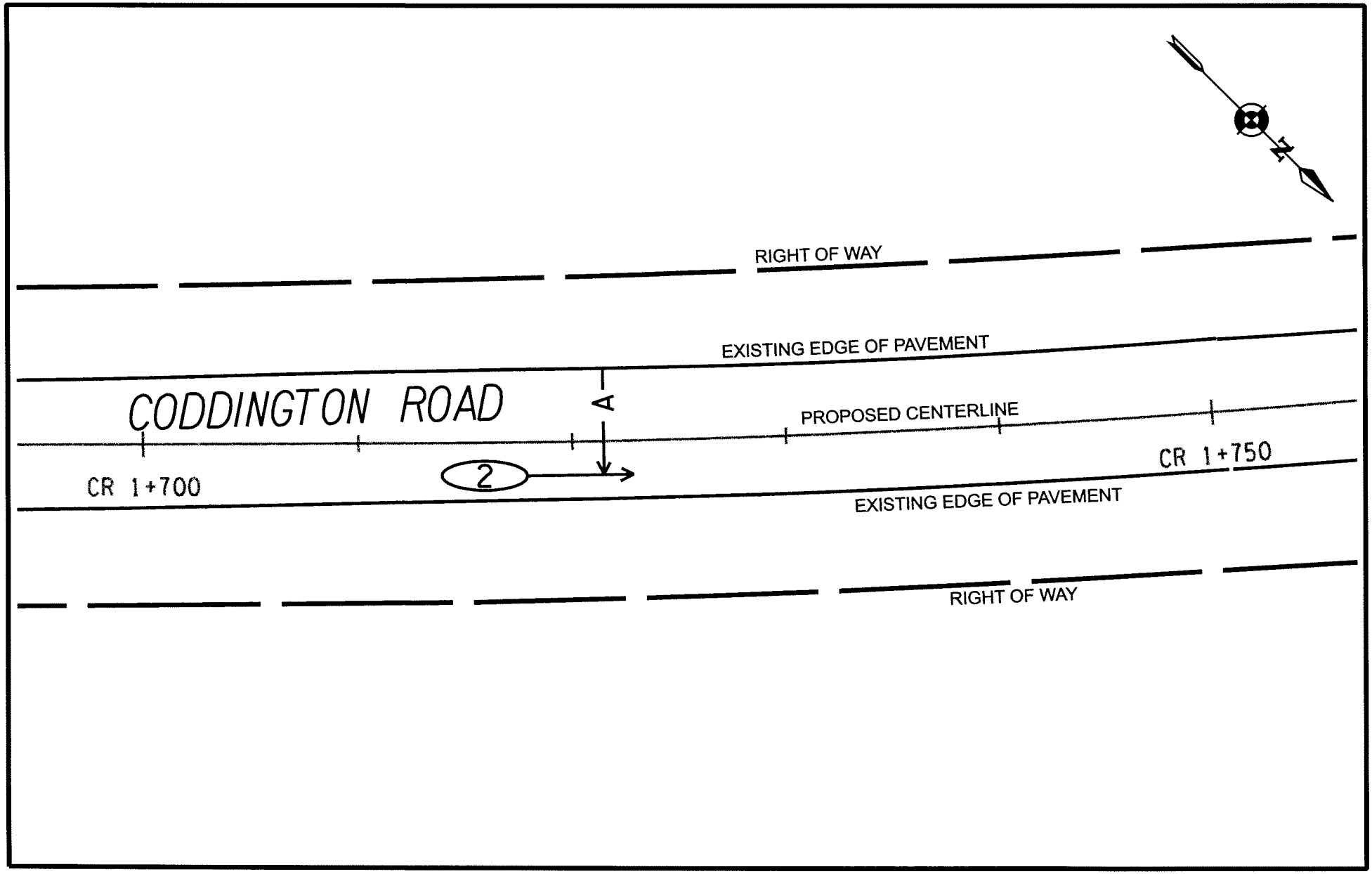
DATE	SCALE	TITLE	SHEET NO.
10/18/05	NONE	ACCIDENT SYMBOL KEY	
PROJ. NO. 4024	PROJECT CODDINGTON ROAD RECONSTRUCTION TOWN OF ITHACA, TOMPKINS CO., NY		ACC-0



Dewberry

Dewberry-Goodkind, Inc.
Rochester, New York

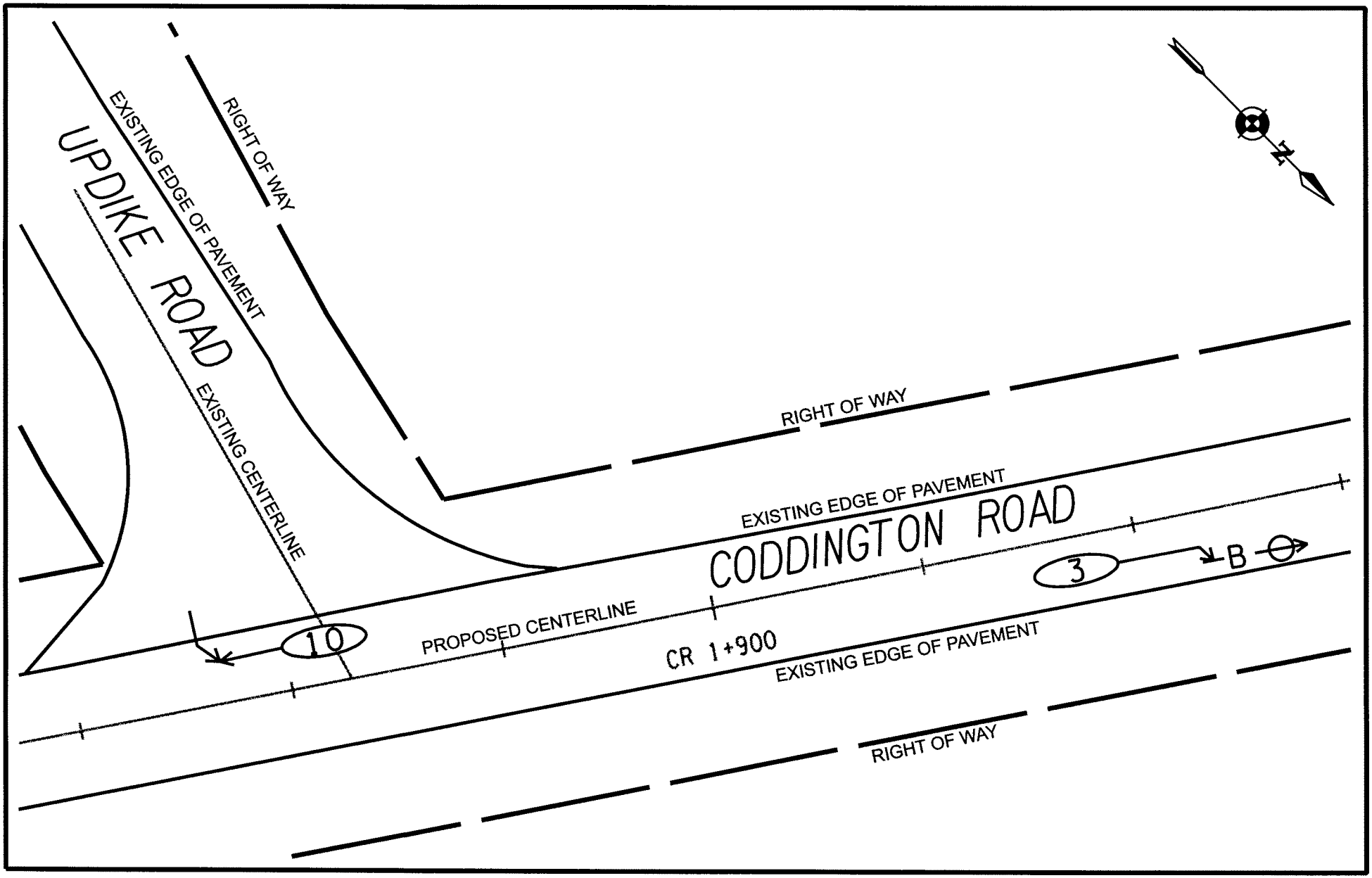
DATE	SCALE	TITLE	SHEET NO.
10/18/05	1 : 250	ACCIDENT LOCATION PLAN	ACC-1
PROJ. NO. 4024	PROJECT CODDINGTON ROAD RECONSTRUCTION TOWN OF ITHACA, TOMPKINS CO., NY		



Dewberry

Dewberry-Goodkind, Inc.
Rochester, New York

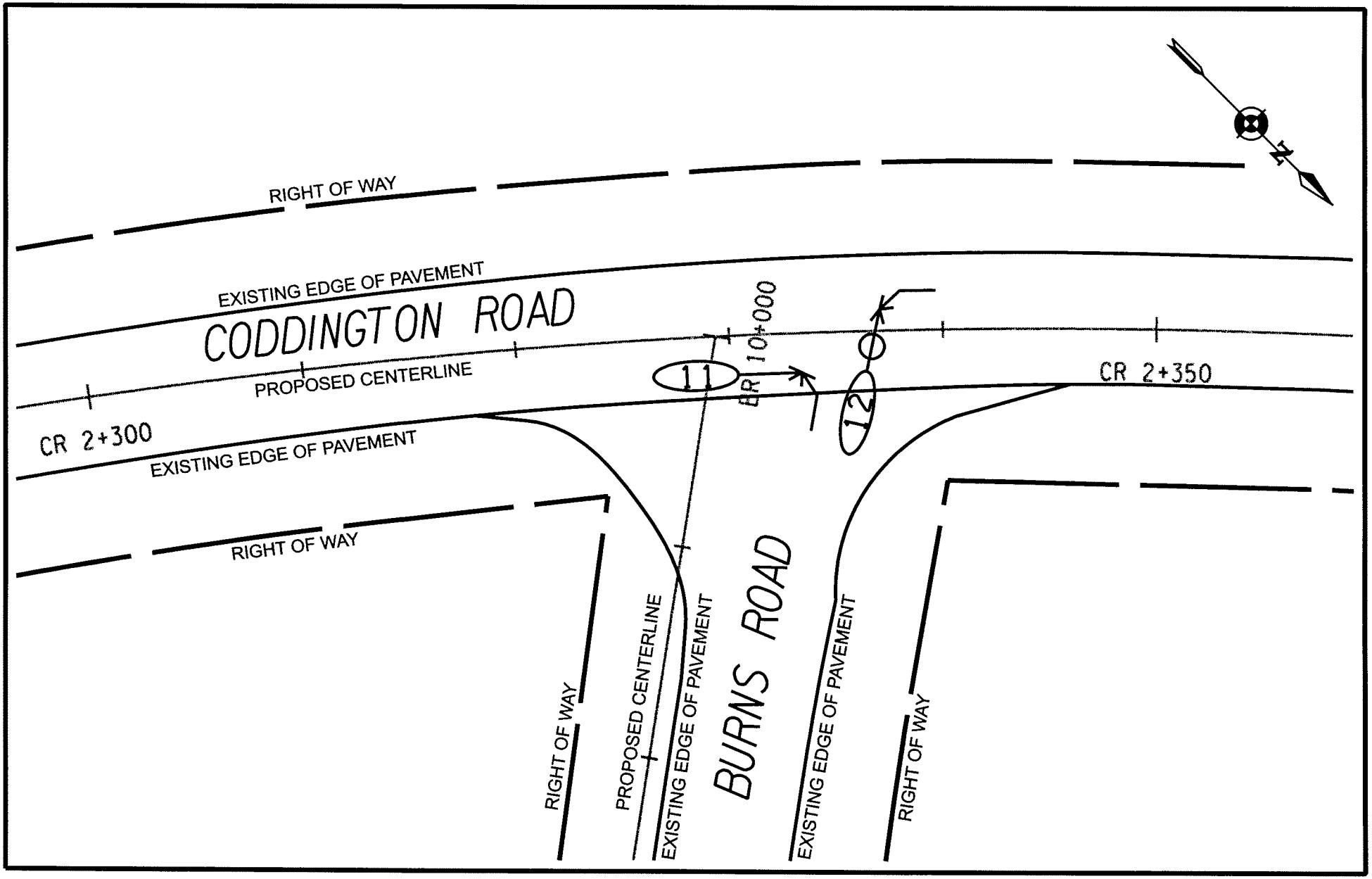
DATE	SCALE	TITLE	SHEET NO.
10/18/05	1 : 250	ACCIDENT LOCATION PLAN	ACC-2
PROJ. NO. 4024	PROJECT CODDINGTON ROAD RECONSTRUCTION TOWN OF ITHACA, TOMPKINS CO., NY		



Dewberry

Dewberry-Goodkind, Inc.
Rochester, New York

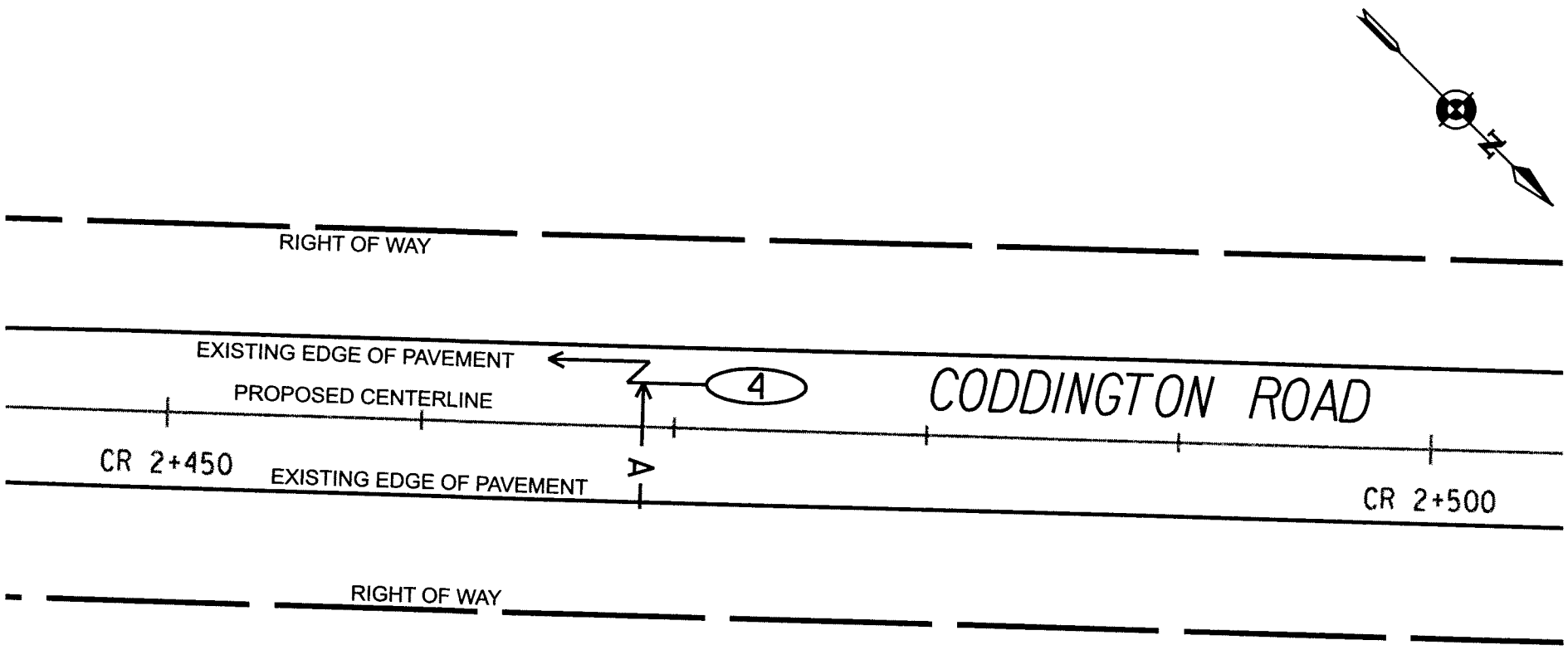
DATE	SCALE	TITLE	SHEET NO.
10/18/05	1 : 250	ACCIDENT LOCATION PLAN	ACC-3
PROJ. NO. 4024	PROJECT CODDINGTON ROAD RECONSTRUCTION TOWN OF ITHACA, TOMPKINS CO., NY		



Dewberry

Dewberry-Goodkind, Inc.
Rochester, New York

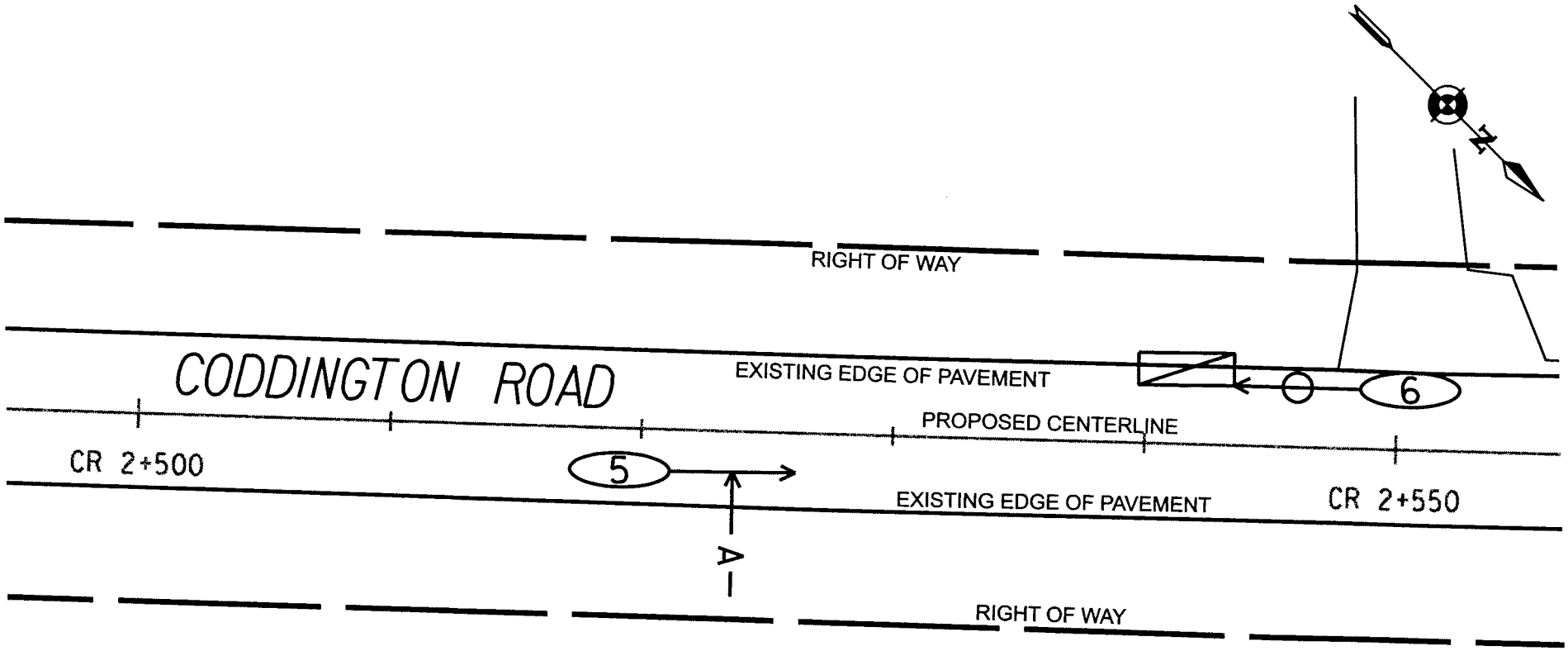
DATE	SCALE	TITLE	SHEET NO.
10/18/05	1 : 250	ACCIDENT LOCATION PLAN	ACC-4
PROJ. NO. 4024	PROJECT CODDINGTON ROAD RECONSTRUCTION TOWN OF ITHACA, TOMPKINS CO., NY		



Dewberry

Dewberry-Goodkind, Inc.
Rochester, New York

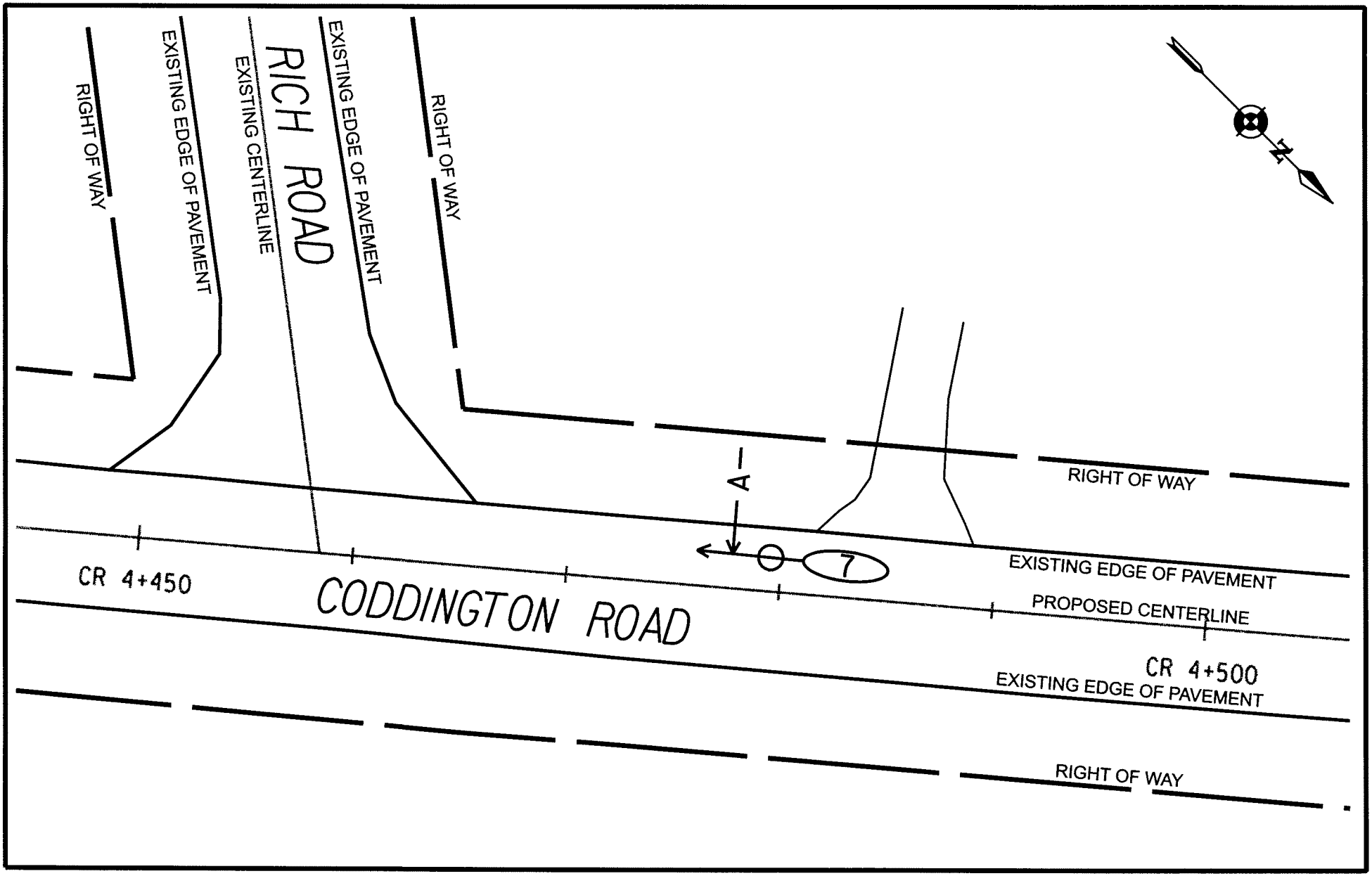
DATE	SCALE	TITLE	SHEET NO.
10/18/05	1 : 250	ACCIDENT LOCATION PLAN	ACC-5
PROJ. NO. 4024	PROJECT CODDINGTON ROAD RECONSTRUCTION TOWN OF ITHACA, TOMPKINS CO., NY		



Dewberry

Dewberry-Goodkind, Inc.
Rochester, New York

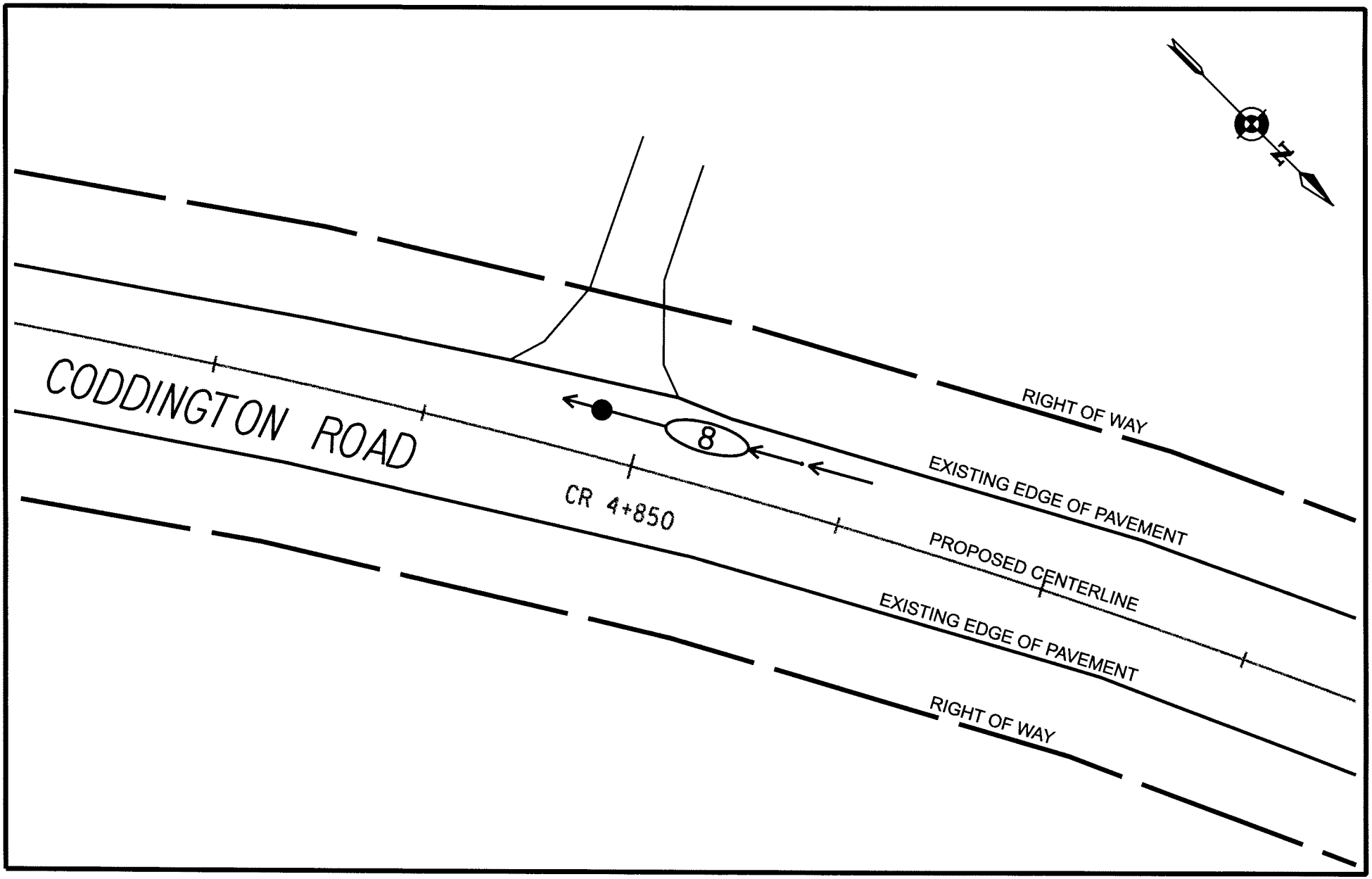
DATE	SCALE	TITLE	SHEET NO.
10/18/05	1 : 250	ACCIDENT LOCATION PLAN	ACC-6
PROJ. NO. 4024	PROJECT CODDINGTON ROAD RECONSTRUCTION TOWN OF ITHACA, TOMPKINS CO., NY		



Dewberry

Dewberry-Goodkind, Inc.
Rochester, New York

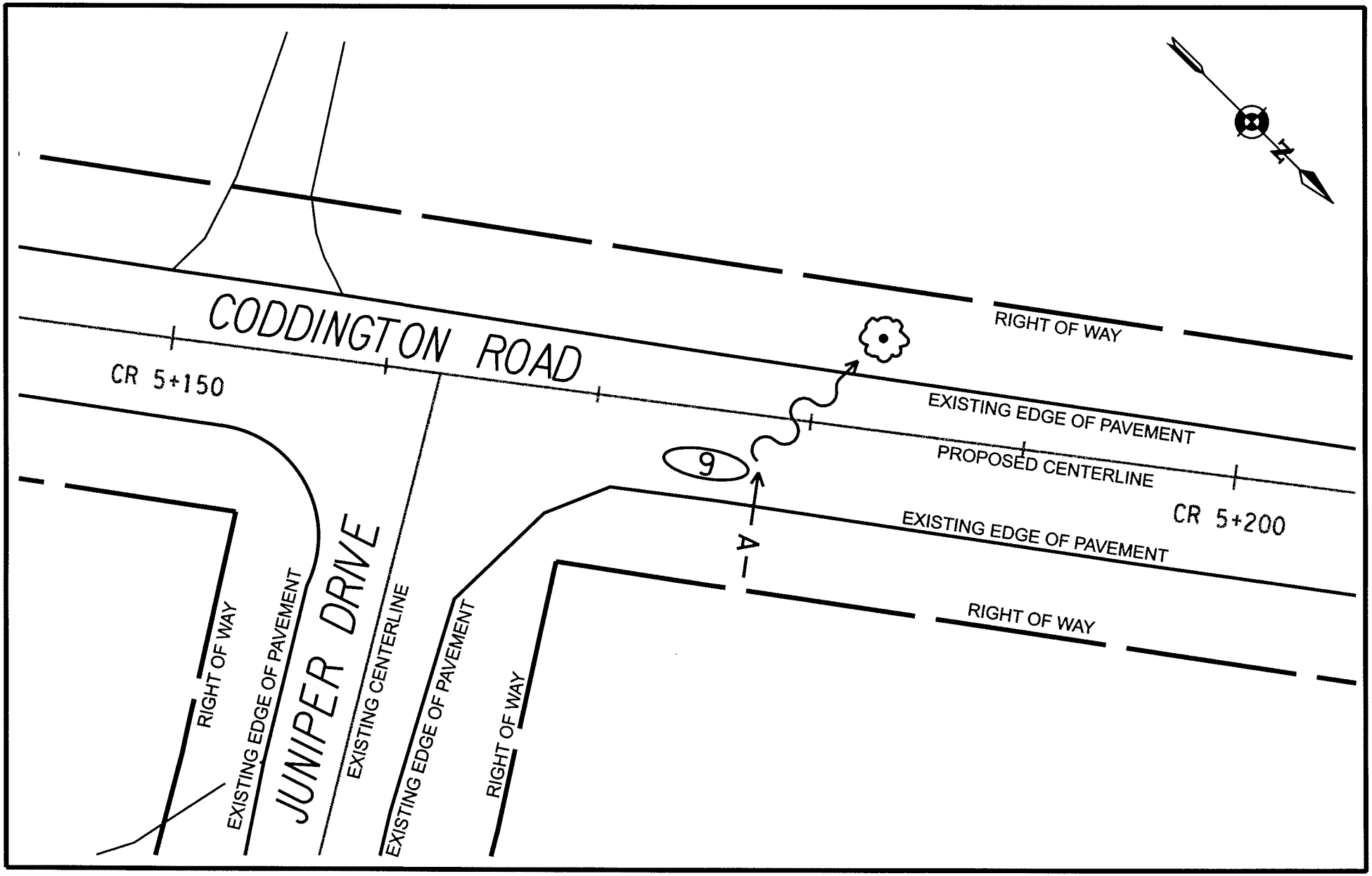
DATE	SCALE	TITLE	SHEET NO.
10/18/05	1 : 250	ACCIDENT LOCATION PLAN	ACC-7
PROJ. NO. 4024	PROJECT CODDINGTON ROAD RECONSTRUCTION TOWN OF ITHACA, TOMPKINS CO., NY		



Dewberry

Dewberry-Goodkind, Inc.
Rochester, New York

DATE	SCALE	TITLE	SHEET NO.
10/18/05	1 : 250	ACCIDENT LOCATION PLAN	ACC-8
PROJ. NO. 4024	PROJECT CODDINGTON ROAD RECONSTRUCTION TOWN OF ITHACA, TOMPKINS CO., NY		



Dewberry

Dewberry-Goodkind, Inc.
Rochester, New York

DATE	SCALE	TITLE	SHEET NO.
10/18/05	1 : 250	ACCIDENT LOCATION PLAN	ACC-9
PROJ. NO. 4024	PROJECT CODDINGTON ROAD RECONSTRUCTION TOWN OF ITHACA, TOMPKINS CO., NY		

AVERAGE ACCIDENT RATES FOR STATE HIGHWAYS BY FACILITY TYPE
(BASED ON ACCIDENT DATA JUNE 2000 THRU MAY 2002)

FACILITY TYPE CONTROLLED ACCESS	--MAINLINE ACCIDENTS ONLY (SEE *)--			–MAINLINE & JUNCTURE ACCIDENTS (SEE **)--		
	ALL TYPES ACC/MVM	WET ROAD ACC/MVM	FIXED OBJECT ACC/MVM	ALL TYPES ACC/MVM	WET ROAD ACC/MVM	FIXED OBJECT ACC/MVM
RURAL FUNCTIONAL CLASS						
UNDIVIDED						
2 LANES	1.69	0.13	0.19	2.22	0.19	0.22
ALL LANES	1.97	0.15	0.22	2.76	0.20	0.26
DIVIDED						
4 LANES	0.99	0.07	0.25	1.06	0.08	0.26
5 LANES	0.97	0.09	0.28	1.02	0.10	0.29
6 LANES	0.78	0.09	0.20	0.87	0.10	0.23
ALL LANES	0.98	0.08	0.25	1.05	0.08	0.26
URBAN FUNCTIONAL CLASS						
UNDIVIDED						
ALL LANES	1.19	0.12	0.15	1.88	0.21	0.19
DIVIDED						
4 LANES	1.09	0.12	0.21	1.47	0.16	0.24
5 LANES	1.44	0.15	0.18	1.80	0.20	0.21
6 LANES	1.78	0.17	0.16	2.26	0.22	0.20
7 LANES	1.16	0.12	0.19	1.50	0.18	0.26
ALL LANES	1.53	0.15	0.17	1.94	0.20	0.20

++ Non-reportable accidents are included in the "All Types" category, but excluded from "Wet Road & Fixed Objects" categories.

* "Non-Intersection Accidents / MVM " is used for linear highway sections where there are no intersecting roads or ramp junctions within analysis limits. An example of the correct use of these rates would involve a linear section of highway which contains no intersections with other public highways, but may contain intersections with private roads or driveways.

** "Intersection & Non-Intersection Accidents / MVM" includes intersection and mainline accidents. They are used for analysis of linear highway sections where intersections are involved within the analysis limits and are the most commonly used rates for accident analysis purposes.

AVERAGE ACCIDENT RATES FOR STATE HIGHWAYS BY FACILITY TYPE
(BASED ON ACCIDENT DATA JUNE 2000 THRU MAY 2002)

FACILITY TYPE PARTIAL CONTROL OF ACCESS	–MAINLINE ACCIDENTS ONLY (SEE *)–			–MAINLINE & JUNCTURE ACCIDENTS (SEE **)–		
	ALL TYPES ACC/MVM	WET ROAD ACC/MVM	FIXED OBJECT ACC/MVM	ALL TYPES ACC/MVM	WET ROAD ACC/MVM	FIXED OBJECT ACC/MVM
RURAL FUNCTIONAL CLASS						
UNDIVIDED						
2 LANES	1.58	0.17	0.25	2.19	0.24	0.30
ALL LANES	1.58	0.17	0.26	2.27	0.25	0.31
DIVIDED						
4 LANES	1.57	0.17	0.49	1.84	0.20	0.53
ALL LANES	1.56	0.17	0.48	1.84	0.20	0.52
URBAN FUNCTIONAL CLASS						
UNDIVIDED						
2 LANES	1.67	0.23	0.29	2.50	0.37	0.35
ALL LANES	1.88	0.25	0.24	3.01	0.43	0.29
DIVIDED						
4 LANES	1.31	0.17	0.25	2.06	0.26	0.31
6 LANES	1.15	0.16	0.21	1.72	0.23	0.26
ALL LANES	1.32	0.17	0.25	2.04	0.27	0.30

++ Non-reportable accidents are included in the "All Types" category, but excluded from "Wet Road & Fixed Objects" categories.

* "Non-Intersection Accidents / MVM " is used for linear highway sections where there are no intersecting roads or ramp junctions within analysis limits. An example of the correct use of these rates would involve a linear section of highway which contains no intersections with other public highways, but may contain intersections with private roads or driveways.

** "Intersection & Non-Intersection Accidents / MVM" includes intersection and mainline accidents. They are used for analysis of linear highway sections where intersections are involved within the analysis limits and are the most commonly used rates for accident analysis purposes.

AVERAGE ACCIDENT RATES FOR STATE HIGHWAYS BY FACILITY TYPE
(BASED ON ACCIDENT DATA JUNE 2000 THRU MAY 2002)

FACILITY TYPE FREE ACCESS CONTROL	--MAINLINE ACCIDENTS ONLY (SEE *)--			--MAINLINE & JUNCTURE ACCIDENTS (SEE **)--		
	ALL TYPES ACC/MVM	WET ROAD ACC/MVM	FIXED OBJECT ACC/MVM	ALL TYPES ACC/MVM	WET ROAD ACC/MVM	FIXED OBJECT ACC/MVM
RURAL FUNCTIONAL CLASS						
UNDIVIDED						
2 LANES	2.22	0.21	0.37	2.81	0.29	0.43
3 LANES	2.10	0.20	0.36	2.77	0.25	0.39
4 LANES	2.11	0.21	0.29	3.18	0.35	0.32
ALL LANES	2.22	0.21	0.37	2.82	0.29	0.43
DIVIDED						
2 LANES	2.45	0.27	0.17	3.79	0.42	0.23
4 LANES	1.53	0.13	0.21	2.15	0.20	0.23
ALL LANES	1.70	0.15	0.20	2.47	0.24	0.22
URBAN FUNCTIONAL CLASS						
UNDIVIDED						
2 LANES	2.19	0.25	0.22	3.66	0.46	0.27
3 LANES	3.01	0.35	0.15	4.98	0.64	0.19
4 LANES	2.94	0.36	0.15	5.66	0.73	0.19
ALL LANES	2.41	0.28	0.21	4.21	0.53	0.27
DIVIDED						
2 LANES	2.86	0.33	0.13	5.12	0.60	0.19
4 LANES	2.60	0.30	0.13	5.05	0.63	0.16
6 LANES	2.51	0.29	0.13	4.94	0.61	0.19
7 LANES	1.15	0.14	0.06	3.59	0.50	0.11
ALL LANES	2.59	0.30	0.12	5.01	0.62	0.17

++ Non-reportable accidents are included in the "All Types" category, but excluded from "Wet Road & Fixed Objects" categories.

* "Non-Intersection Accidents / MVM " is used for linear highway sections where there are no intersecting roads or ramp junctions within analysis limits. An example of the correct use of these rates would involve a linear section of highway which contains no intersections with other public highways, but may contain intersections with private roads or driveways.

** "Intersection & Non-Intersection Accidents / MVM" includes intersection and mainline accidents. They are used for analysis of linear highway sections where intersections are involved within the analysis limits and are the most commonly used rates for accident analysis purposes.

AVERAGE INTERSECTION ACCIDENT RATES FOR STATE HIGHWAYS BY INTERSECTION TYPE
(BASED ON ACCIDENT DATA JUNE 2000 THRU MAY 2002)

INTERSECTION TYPE RURAL FUNCTIONAL CLASS	ALL TYPES ACC / MEV	WET ROAD ACC / MEV	LEFT TURN ACC / MEV	REAR END ACC / MEV	OVER-TAKING ACC / MEV	RIGHT ANGLE ACC / MEV	RIGHT TURN ACC / MEV	HEAD-ON ACC / MEV	SIDE-SWIPE ACC / MEV
3 LEGGED INTERSECTIONS									
SIGNAL, ALL LANES	0.36	0.05	0.04	0.07	0.01	0.05	0.00	0.00	0.00
SIGN, ALL LANES	0.16	0.02	0.01	0.03	0.01	0.02	0.00	0.00	0.00
NO CONTROL, ALL LANES	0.10	0.01	0.01	0.02	0.00	0.01	0.00	0.00	0.00
4 LEGGED INTERSECTIONS									
SIGNAL, ALL LANES	0.59	0.08	0.08	0.10	0.02	0.13	0.01	0.00	0.01
SIGN, ALL LANES	0.35	0.04	0.03	0.04	0.01	0.10	0.00	0.00	0.00
NO CONTROL, ALL LANES	0.21	0.02	0.02	0.02	0.01	0.02	0.00	0.01	0.00
ON RAMP									
MERGE W/ 1 LANE	0.33	0.04	0.04	0.07	0.00	0.04	0.00	0.00	0.00
MERGE W/ 2 & > LANES	0.07	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00
OFF RAMP									
MERGE W/ 1 LANE	0.52	0.06	0.03	0.16	0.00	0.06	0.00	0.00	0.00
MERGE W/ 2 & > LANES	0.13	0.01	0.00	0.02	0.01	0.01	0.00	0.00	0.00

++ Non-reportable accidents are included in the "All Types" category, but excluded from all other categories.

AVERAGE INTERSECTION ACCIDENT RATES FOR STATE HIGHWAYS BY INTERSECTION TYPE
(BASED ON ACCIDENT DATA JUNE 2000 THRU MAY 2002)

INTERSECTION TYPE URBAN FUNCTIONAL CLASS	ALL TYPES ACC / MEV	WET ROAD ACC / MEV	LEFT TURN ACC / MEV	REAR END ACC / MEV	OVER-TAKING ACC / MEV	RIGHT ANGLE ACC / MEV	RIGHT TURN ACC / MEV	HEAD-ON ACC / MEV	SIDE-SWIPE ACC / MEV
3 LEGGED INTERSECTIONS									
SIGNAL, 1 - 4 LANES	0.35	0.05	0.04	0.08	0.01	0.04	0.01	0.00	0.00
SIGNAL W/ LEFT TURN 5 & > LANES	0.29	0.03	0.03	0.07	0.02	0.03	0.00	0.00	0.00
SIGNAL W/O LEFT TURN 5 & > LANES	0.23	0.03	0.02	0.06	0.02	0.03	0.01	0.00	0.00
SIGN, 1 - 3 LANES	0.16	0.02	0.01	0.04	0.01	0.02	0.00	0.00	0.00
SIGN, 4 LANES	0.13	0.02	0.01	0.03	0.01	0.02	0.00	0.00	0.00
SIGN, 5 & > LANES	0.09	0.01	0.01	0.02	0.00	0.01	0.00	0.00	0.00
NO CONTROL, ALL LANES	0.07	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00
4 LEGGED & > INTERSECTIONS									
SIGNAL, 1 - 4 LANES	0.60	0.08	0.09	0.13	0.03	0.08	0.01	0.00	0.00
SIGNAL W/ LEFT TURN 5 & > LANES	0.46	0.06	0.04	0.12	0.03	0.07	0.01	0.00	0.00
SIGNAL W/O LEFT TURN 5 & > LANES	0.34	0.04	0.03	0.07	0.02	0.06	0.00	0.00	0.00
SIGN, 1 - 3 LANES	0.27	0.04	0.03	0.05	0.01	0.07	0.00	0.00	0.00
SIGN, 4 & > LANES	0.22	0.03	0.03	0.04	0.01	0.04	0.00	0.00	0.00
NO CONTROL, ALL LANES	0.25	0.03	0.02	0.07	0.01	0.03	0.00	0.00	0.00
ON RAMP									
MERGE W/ 1 LANE	0.24	0.01	0.00	0.06	0.01	0.02	0.00	0.00	0.00
MERGE W/ 2 LANES	0.11	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00
MERGE W/ 3 & > LANES	0.07	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00
OFF RAMP									
MERGE W/ 1 LANE	0.16	0.03	0.02	0.03	0.01	0.03	0.00	0.00	0.00
MERGE W/ 2 LANES	0.19	0.02	0.01	0.05	0.01	0.01	0.00	0.00	0.00
MERGE W/ 3 & > LANES	0.15	0.01	0.00	0.03	0.01	0.00	0.00	0.00	0.00

++ Non-reportable accidents are included in the "All Types" category, but excluded from all other categories.

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JOB CODDINGTON ROAD NOTES BY SPW DATE 11/2/05

MAIN-LINE ACCIDENT RATE CHECK BY _____ DATE _____

AVERAGE ANNUAL TRAFFIC
500 FT SOUTH OF BURNS (AAT_1)

AAT_1 = 352225 VEH/YEAR

AVERAGE ANNUAL TRAFFIC
230 FT SOUTH OF ITHACA COLLEGE (AAT_2)

STUDY DURATION: 73 HR - 30 MIN
TOTAL NUMBER OF VEH: 4493

AVERAGE DAILY TRAFFIC = 1467 VEH/DAY

$(AAT_2) = 1467 \times 365 =$ 535455 VEH/YEAR

AVERAGE ANNUAL TRAFFIC (AAT_{AVE})

$$AAT_{AVE} = \frac{AAT_1 + AAT_2}{2} = 443840 \text{ VEH/YR}$$

ACCIDENT RATE ALONG CODDINGTON ROAD

NUMBER OF ACCIDENTS IN (3)-YEARS = 12

$$\frac{\#\text{ ACC}}{3\text{ YR}} \times \frac{1\text{ YR}}{\#\text{ VEH}} \times \frac{1{,}000{,}000}{1\text{ mvm}} =$$

$$\frac{12\text{ ACC}}{3\text{ YR}} \times \frac{1\text{ YR}}{443840} \times \frac{1{,}000{,}000}{1\text{ mvm}} = 9.01 \text{ ACC/mvm}$$

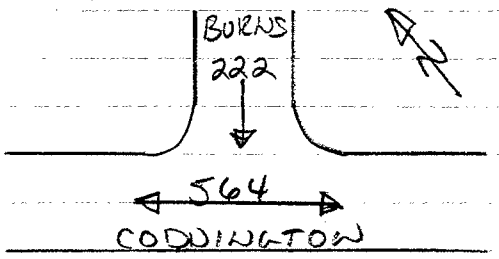
STATE-WIDE ACCIDENT RATE FOR RURAL FREE ACCESS, 2-LANE, UNDIVIDED FACILITIES (MAINLINE & JUNCTURE)

2.81 ACC/mvm

INTERSECTION: CODDINGTON + BURNS

CODDINGTON TRAFFIC COUNT LOCATION:
500 FT SOUTH OF BURNS
STUDY DURATION: 48 HRS - 45 MIN
TOTAL NUMBER OF VEH: 1960

AVERAGE DAILY TRAFFIC (ADT_{CODD}) = 965 VEH/DAY
AVERAGE ANNUAL TRAFFIC (AAT_{CODD}) =
965 × 365 = 352225 VEH/YEAR



DURING PEAK HOURS:
TOTAL VEH IN INTERSECTION =
222 + 564 = 786 VEH

PERCENT VEH TRAVELING BURNS
222/786 = 28.2 %

NO. OF VEHICLES PASSING THROUGH INTERSECTION DURING BOTH PEAK AM & PEAK PM HOURS

PERCENT VEH TRAVELING CODDINGTON =
564/786 = 71.8 %

AVERAGE ANNUAL TRAFFIC ON BURNS (AAT_{BURNS})

$$\frac{AAT_{CODD}}{\%\,VEH_{CODD}} \times \frac{AAT_{BURNS}}{\%\,VEH_{BURNS}} = \frac{352225}{71.8} \times \frac{AAT_{BURNS}}{28.2}$$

AAT_{BURNS} = 138339 VEH/YEAR

TOTAL VEHICLES ENTERING INTERSECTION PER YEAR

TOTAL VEH = AAT_{CODD} + AAT_{BURNS}
= 352225 + 138339

= 490564 VEH/YEAR

INTERSECTION: CODDINGTON + UPDIKE

CODDINGTON TRAFFIC COUNT LOCATION:
1625 FT SOUTH OF UPDIKE
STUDY DURATION: 49 HRS - 15 MIN
TOTAL NUMBER OF VEH: 1639

AVERAGE DAILY TRAFFIC (ADT_{CODD}) = 799 VEH/DAY
AVERAGE ANNUAL TRAFFIC (AAT_{CODD}) =
$799 \times 365 =$ 291635 VEH/YEAR

NOTE: ASSUME ZERO VEHICLES ENTERING INTERSECTION FROM UPDIKE

$\therefore AAT_{UPDIKE} = 0$

TOTAL VEHICLES ENTERING INTERSECTION PER YEAR

TOTAL VEH $= AAT_{CODD} + AAT_{UPDIKE}$
$= 291635 + 0$

$= 291635$ VEH/YEAR

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CONSULTING ENGINEERS

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JOB CODDINGTON ROAD INTERSECTION ACCIDENT RATES | NOTES BY SPW | DATE 11/2/05

CHECK BY | DATE

INTERSECTION	BURNS + CODDINGTON	UPDIKE + CODDINGTON
NUMBER OF ACCIDENTS	2 ACCIDENT	1 ACCIDENT
TIME PERIOD OF DATA	3 YEARS	3 YEARS
NUMBER OF ACCIDENTS PER YEAR	.67 ACCIDENTS / YEAR	.33 ACCIDENTS / YEAR
AAT	490564 VEH/YR	291635 VEH/YR
NUMER OF ACCIDENTS PER 1,000,000 VEHICLES	$(1000000)\left(\frac{.67}{490564}\right)$ = 1.37 ACC/MEV	$(1000000)\left(\frac{.33}{291635}\right)$ = 1.13 ACC/MEV
AVERAGE ANNUAL STATE-WIDE ACCIDENT RATE @ RURAL 3-LEG SIGN CONTROLLED INTERSECTION	0.16 ACC/MEV	