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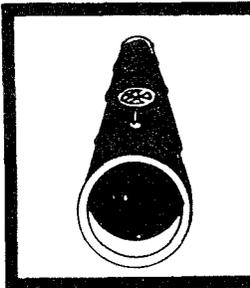
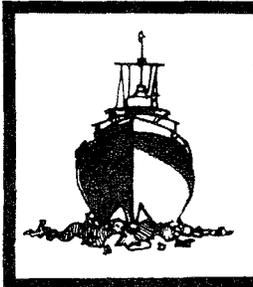
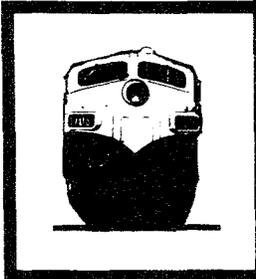
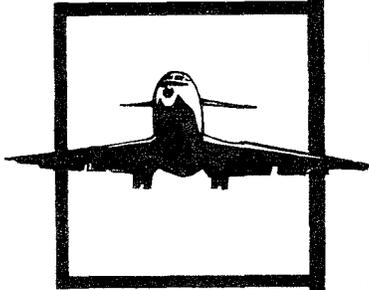
WASHINGTON, D.C. 20594

RAILROAD/HIGHWAY ACCIDENT REPORT

**COLLISION OF AMTRAK TRAIN NO. 88
WITH TRACTOR LOWBOY SEMITRAILER
COMBINATION TRUCK
ROWLAND, NORTH CAROLINA
AUGUST 25, 1983**

NTSB/RHR-84/01

UNITED STATES GOVERNMENT



TECHNICAL REPORT DOCUMENTATION PAGE

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<p>16. Abstract About 1:10 a.m., e.d.t., on August 25, 1983, northbound National Railroad Passenger Corporation (Amtrak) train No. 88, the Silver Meteor, struck an S. L. Balogh Trucking Company, Inc., tractor-lowboy semitrailer combination truck that had become lodged on a grade crossing of the single main track of the Seaboard System Railroad in Rowland, North Carolina. The 2 locomotive units and 2 cars of the 18-car consist of the train were derailed. The truck was damaged substantially and its cargo destroyed. Two of the 363 passengers on the train were treated at the scene and 15 were taken to local hospitals; 1 passenger was admitted, and the others were treated and released. Six of the 22 train attendants also were treated and released. Amtrak reports that since the accident an additional six passengers have claimed injury. The truckdriver was not injured. There was no fire. Property damage was estimated to be about \$623,399.</p> <p>The National Transportation Safety Board determines that the probable cause of this accident was the deliberate deviation of the truckdriver from the route prescribed on a permit for the movement of the oversized vehicle and an ensuing detour onto a railroad/highway grade crossing that would not accommodate the low ground clearance of the vehicle.</p>			
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Adopted: August 9, 1984

**COLLISION OF AMTRAK TRAIN NO. 88
WITH A TRACTOR LOWBOY SEMITRAILER COMBINATION TRUCK
ROWLAND, NORTH CAROLINA
AUGUST 25, 1983**

SYNOPSIS

About 1:10 a.m., e.d.t., on August 25, 1983, northbound National Railroad Passenger Corporation (Amtrak) train No. 88, the Silver Meteor, struck an S. L. Balogh Trucking Company, Inc., tractor-lowboy semitrailer combination truck that had become lodged on a grade crossing of the single main track of the Seaboard System Railroad in Rowland, North Carolina. The 2 locomotive units and 2 cars of the 18-car consist of the train were derailed. The truck was damaged substantially and its cargo destroyed. Two of the 363 passengers on the train were treated at the scene and 15 were taken to local hospitals; 1 passenger was admitted, and the others were treated and released. Six train attendants also were treated and released. Amtrak reports that since the accident an additional six passengers have claimed injury. The truckdriver was not injured. There was no fire. Property damage was estimated to be about \$623,399.

The National Transportation Safety Board determines that the probable cause of this accident was the deliberate deviation of the truckdriver from the route prescribed on a permit for the movement of the oversized vehicle and an ensuing detour onto a railroad/highway grade crossing that would not accommodate the low ground clearance of the vehicle.

INVESTIGATION

The Accident

National Railroad Passenger Corporation (Amtrak) northbound train No. 88, the Silver Meteor, operating on Seaboard System Railroad track, departed St. Petersburg, Florida, at 9:44 a.m., e.d.t., on August 24, 1983, for New York, New York. ^{1/} At Jacksonville, Florida, the equipment of Amtrak passenger train No. 98 from Miami, Florida, was added to train No. 88's consist. Train No. 88 left Jacksonville at 5:07 p.m. with 2 General Motors F40PH diesel-electric locomotive units, 4 baggage cars, and 14 passenger cars. About 7:40 p.m., the train struck and killed a pedestrian about 8 miles north of Savannah, Georgia, near O'Leary, Georgia. The train left O'Leary at 8:57 p.m. About 9:27 p.m., the train struck a pickup truck that was stopped too close to the track near Ridgeland, South Carolina. The train was inspected, but no damage was found, except that the speedometer on the lead locomotive unit was rendered inoperative by the collision. The train departed Ridgeland at 9:55 p.m. and arrived at Florence, South Carolina, about 12:24 a.m. on August 25. The train and engine crews were changed, and

^{1/} Amtrak passenger trains operate over Seaboard System Railroad track from St. Petersburg and Miami, Florida, to Richmond, Virginia, and are manned by Seaboard train and engine crews and Amtrak car attendants.

the train left Florence at 12:30 a.m., 1 hour 38 minutes behind schedule. The train consist was unchanged. Aboard the train were an engineer, a fireman, a conductor and two brakemen employed by Seaboard; 22 train attendants employed by Amtrak; and 363 passengers.

At milepost (MP) location 256.4, 36 miles north of Florence, the engineer slowed the train's speed to about 30 mph to comply with a slow order between MP locations 256.4 and 254.7. As the train approached Rowland, North Carolina, the train's speed had been increased to about 65 mph according to the engineer. When the train was about 1,200 feet south of the Church Street railroad/highway grade crossing in Rowland, the engineer saw the semitrailer of a truck blocking the crossing. (See figure 1.) He applied the train's brakes in emergency, and he and the fireman lay on the floor of the locomotive cab. The lead locomotive unit struck the semitrailer, derailed to the right, separated from the second unit, turned over on its right side, and slid along the ground. The second locomotive unit continued forward on its wheels and struck the overturning lead locomotive unit. The force of the collision caused the lead locomotive unit to return to an upright position. The lead locomotive unit was turned about 130 degrees with its front end resting in a drainage ditch; its rear end lay close to the following end of the second locomotive. (See figure 2.) The second locomotive unit, the following baggage mail car, and the baggage dormitory car were derailed upright. They remained parallel and to the left of the track. The other 16 cars were not derailed. There was no fire.

The truck involved in the accident, an S.L. Balogh Trucking Company, Inc., tractor-lowboy semitrailer combination unit transporting a large piece of road construction equipment, had left Stanhope, New Jersey, about 1 p.m. on August 23, 1983, destined for Hialeah Gardens, Florida. The truck traveled south on Interstate Route 95 (I-95), and the truckdriver stopped to rest in Virginia from 1 a.m. to 9 a.m. on August 24. According to the truckdriver, he continued on I-95 and stopped at a truckstop in St. Pauls, North Carolina, between 8:30 p.m. and 9 p.m. The truck departed the truckstop at 12:01 a.m. on August 25 and traveled west on N.C. Route 20. The truckdriver said that he did not return to I-95 because he wanted to find a route that would take him around a weigh (scale) station located farther south on I-95.

The truckdriver continued west on N.C. Route 20 and then on other highways that led him to eastbound N.C. Route 130, which was designated Main Street in Rowland. The truck traveled east on Main Street, and as the truckdriver approached the Main Street grade crossing of the Seaboard's main line, he found the crossing barricaded. Earlier in the day, Seaboard personnel had removed the pavement to resurface the crossing. The truckdriver turned right onto South Railroad Street, which parallels the west side of the railroad right-of-way, and headed south. (See figure 3.) The next grade crossing south of Main Street was at Church Street, where the truckdriver attempted to turn left and move across the railroad track. The truck tractor successfully crossed the track, but the bottom of the semitrailer struck and became lodged on the track. (See figure 4.) Efforts by the truckdriver to drive the semitrailer off the track failed. The driver attempted to raise the semitrailer frame by operating the rams on the semitrailer gooseneck, but the semitrailer remained lodged on the track. The truckdriver did not place flares on the track; he was not carrying any on his vehicle. About 5 to 10 minutes later, the truckdriver saw the headlight of the approaching train, and the warning devices at the crossing activated. He left the truck and ran from the crossing.

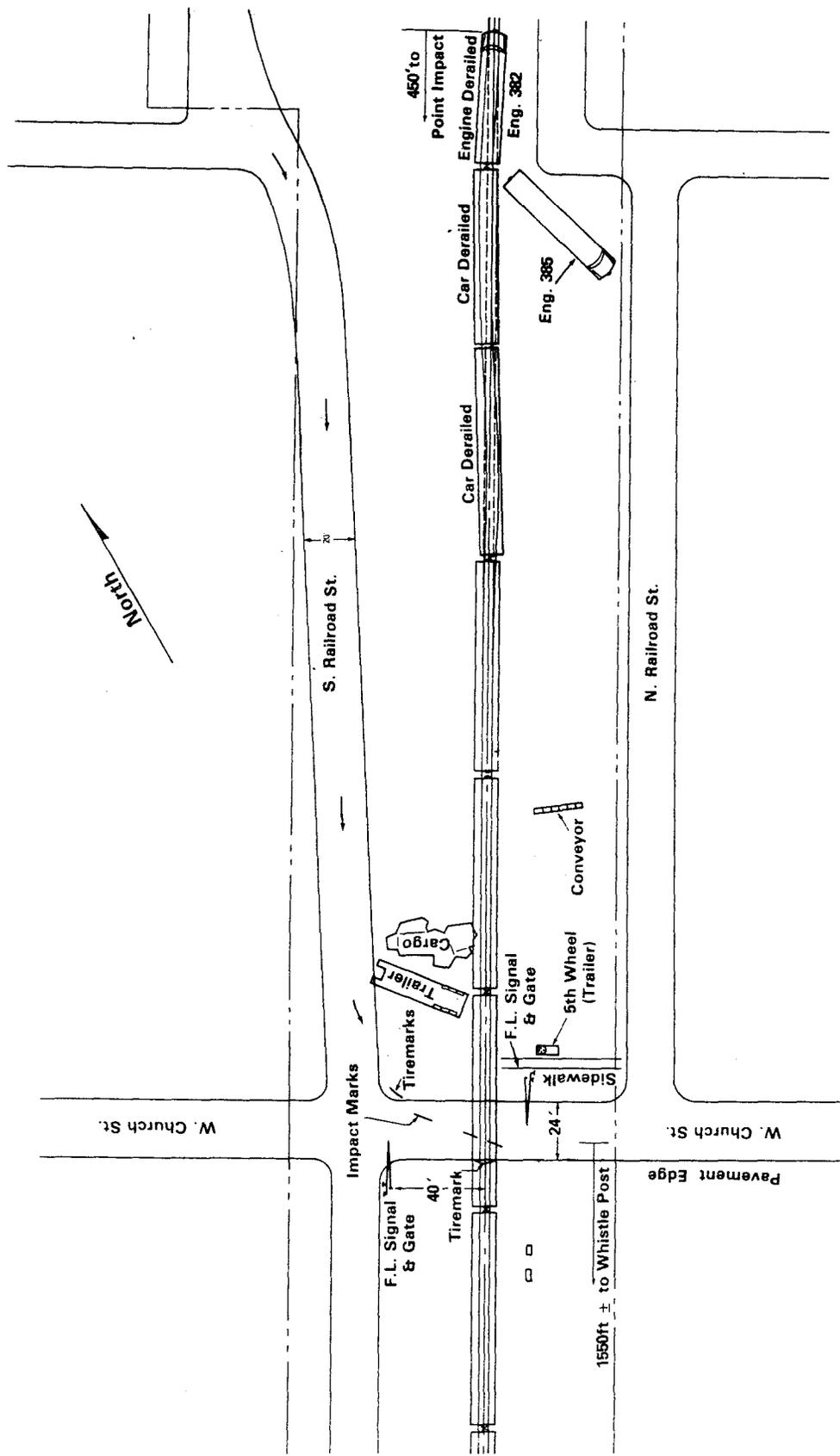


Figure 1.--Plan view of accident site.

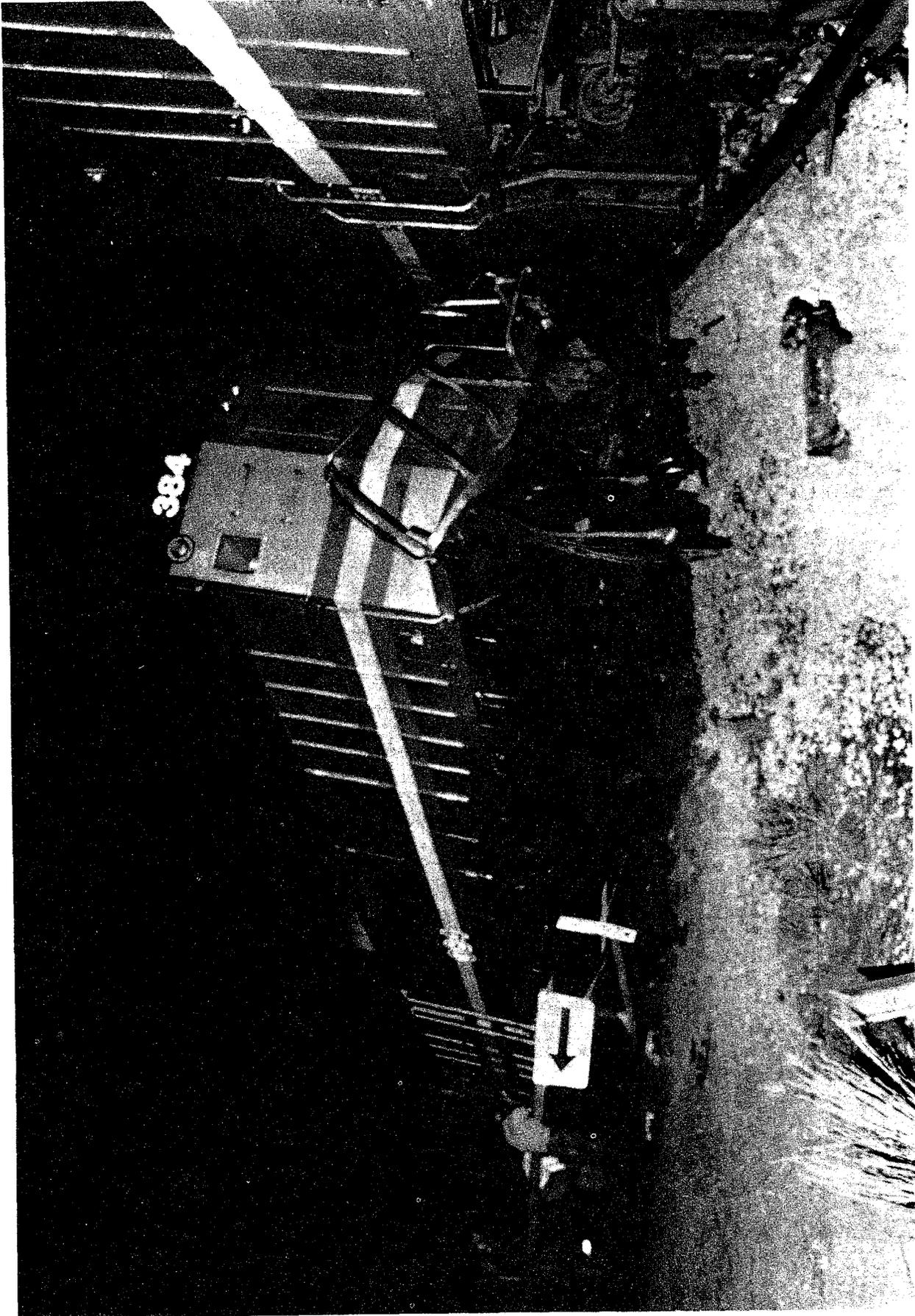
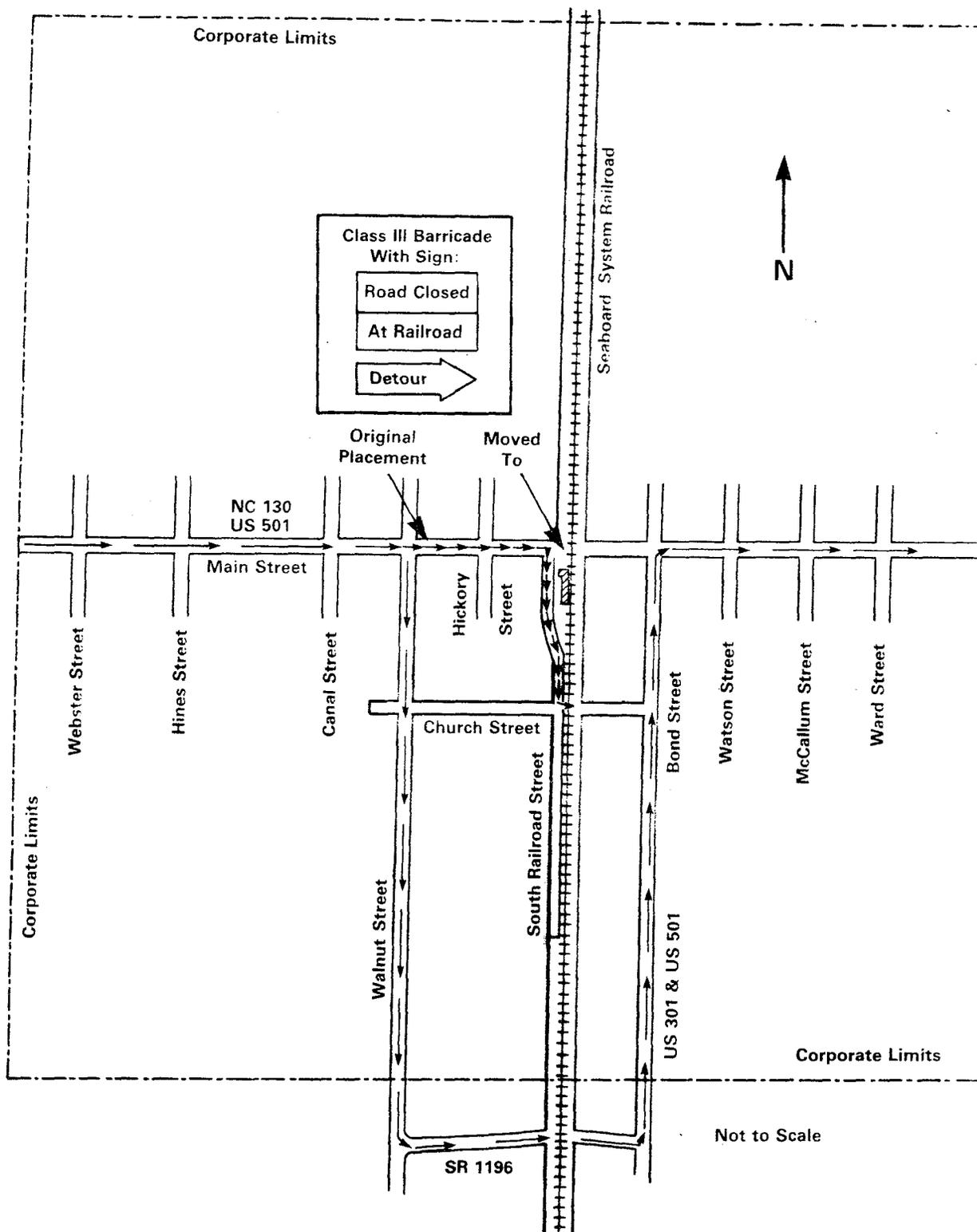


Figure 2.--Lead locomotive unit of train No. 88.



ROWLAND, N.C.

Route Truck Traveled →→→→→

Marked Detour—Route Truck Should Have Traveled ———→

Figure 3.--Plan view of detour route.

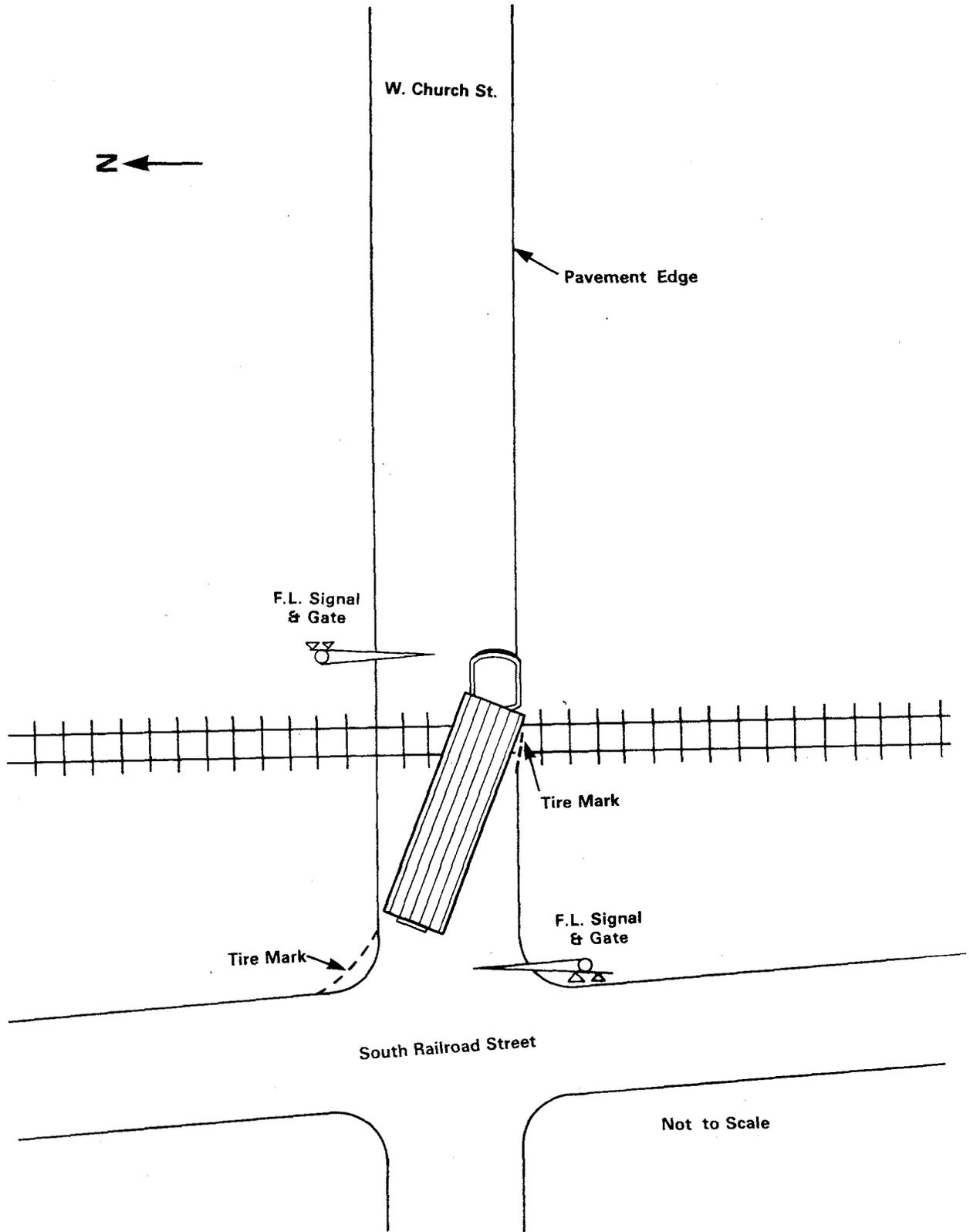


Figure 4.--Truck in lodged position on crossing at accident site.

A Rowland police officer was patrolling a residential area just west of the railroad track when he was notified by a motorist that a truck was blocking the track at Church Street. He immediately began driving toward the crossing, and as he turned onto South Railroad Street, he saw the trailer stuck on the crossing. Simultaneously, he heard the train approaching with its whistle sounding and saw its headlight and oscillating light operating. The police officer immediately radioed his dispatcher and called for fire and ambulance equipment. While radioing, he saw the truckdriver running east from the crossing. The radio call was made to the police dispatcher at 1:10 a.m.

When the train struck the truck, the fifth wheel attachment to the truck-tractor frame separated, leaving the tractor relatively undamaged. The goose neck separated from its attachment to the lowboy trailer bed and came to rest in the northeast quadrant of the crossing. The lowboy trailer came to rest upright after being rotated about 180 degrees from its original heading and into the northwest quadrant of the crossing. The piece of construction equipment broke loose of the lowboy trailer and came to rest north of the trailer. (See figure 1.)

Injuries to Persons

	<u>Traincrew</u>	<u>Amtrak attendants</u>	<u>Train Passengers</u>	<u>Truck-driver</u>	<u>Others</u>	<u>Total</u>
Fatal	0	0	0	0	0	0
Nonfatal	0	6	23	0	0	29
None	5	16	340	1	0	362
Totals	5	22	363	1	0	391

Train Information and Damage

The locomotive consist of train No. 88 was two 3,000-horsepower model F40PH diesel-electric locomotive units manufactured by the Electro-Motive Division of the General Motors Company. The lead unit was equipped with a dual sealed-beam fixed headlight and oscillating light, a five-chime forward-facing horn (whistle), and a bell. The train consisted of, in order from behind the locomotive, a baggage car loaded with mail, a baggage-dormitory car, a sleeper, a budget sleeper, a diner, four Amfleet coaches, a diner, a lounge car, four Amfleet coaches, a sleeper, and two empty baggage cars.

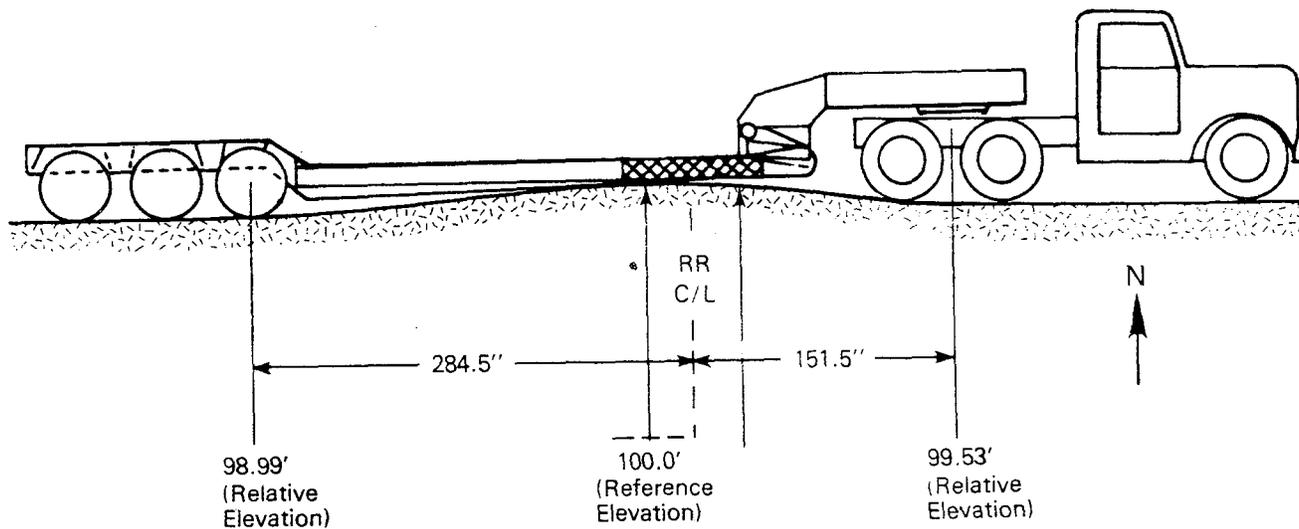
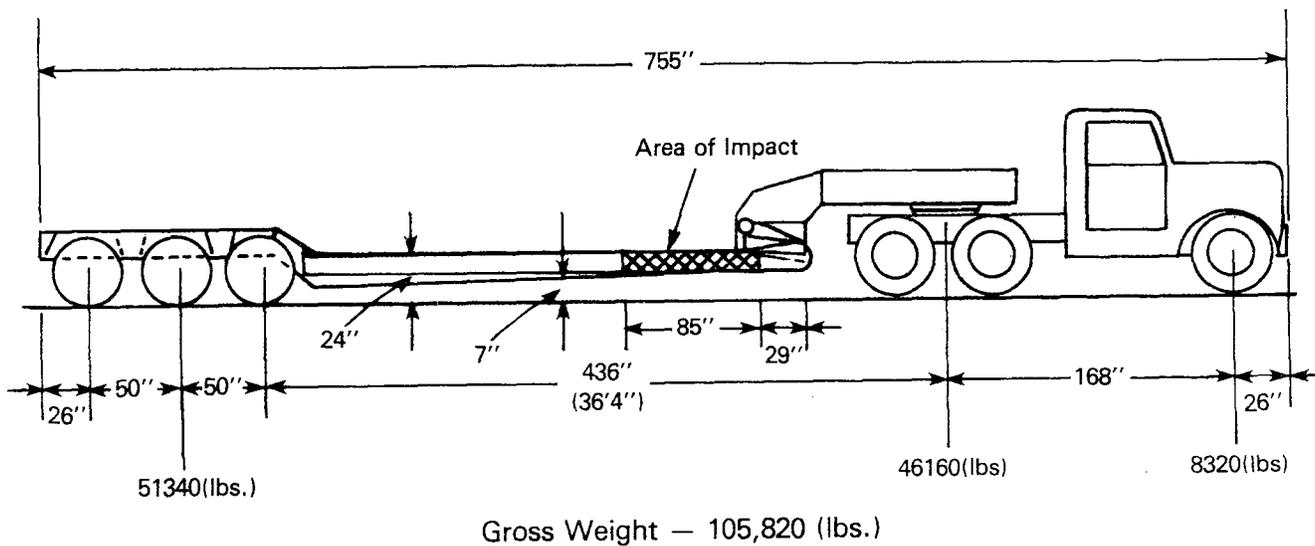
The lead locomotive unit was damaged substantially. The second locomotive unit, the baggage mail car, and the baggage-dormitory car all received minor damage.

About 250 feet of the track were destroyed. A crossing gate was damaged, and a telephone pole was knocked down. The Seaboard and Amtrak estimated the cost of damage to be:

Locomotive	\$225,399
Baggage Cars	4,000
Track Damage	35,000
Total	\$264,399

Vehicle Information and Damage

The tractor-lowboy semitrailer combination (see figure 5) was owned and operated by the S.L. Balogh Trucking Company, Inc., of Ft. Lauderdale, Florida. The 63-foot-long unit with its cargo was weighed in Virginia the day before the accident; the gross



Not to Scale

Figure 5.--Measurements and weights of tractor and lowboy semitrailer as loaded (top), and measurements of tractor and lowboy semitrailer in relation to grade crossing at the accident site (bottom).

weight was 105,820 pounds. The tractor tandem axle weighed 2,160 pounds more than the weight allowed on the permit issued by Virginia. (See appendix C.) A summons was issued to the driver, and a \$257 fine was paid.

The tractor was a 1974 Ford conventional-cab, three-axle tractor, VIN U91TVS34412, with no sleeper. It was equipped with a diesel engine, a 13-speed Fuller transmission, air brakes, a Fontaine sliding fifth wheel, and size 10:00 by 20 tube-type tires.

The semitrailer was a 1978 Rogers, three-axle lowboy, Serial No. 18749. It was manufactured by Rogers Brothers Corporation, Albion, Pennsylvania, and was equipped with a 10-foot-long detachable gooseneck that connected the trailer to the tractor. Two hydraulically operated rams connected the rear of the gooseneck to the forward end of the trailer. A small gasoline engine, contained within the gooseneck, supplied power to the hydraulically operated rams to adjust the height of the front trailer frame. The dimensions of the trailer were as follows:

Length (without gooseneck)	40 feet 1 inch
Length (with gooseneck attached)	48 feet
Height (top of loading deck when loaded)	Approx. 24 inches
Frame height (below loading deck when loaded)	Approx. 7 inches
Width	10 feet
Length of loading deck	24 feet

The cargo consisted of a 61,000-pound, 4-wheel-track, Model PL2000 Pavement Profiler (see figure 6). The machine was manufactured by Dynapac Manufacturing, Inc., of Stanhope, New Jersey. The Balogh truck was transporting the equipment from Stanhope to a customer in Hialeah Gardens, Florida. The machine was 98 inches wide, 117 inches high, and measured 22 feet 11 inches long at the wheel tracks. An adjustable boom-type loading conveyor extended 23 feet from the front of the machine.

The machine had been loaded on the semitrailer by Dynapac employees. The wheel tracks were resting on the loading deck of the semitrailer with the conveyor boom extending forward and above the tractor cab. Only the weight of the machine resting on the loading deck secured the machine to the semitrailer. The conveyor boom was adjusted to a height of 13 feet 6 inches when the machine was loaded.

The front of the lead locomotive unit struck the right side of the semitrailer. The impact area began at a point approximately 29 inches to the rear of the front of the loading deck and extended rearward for approximately 85 inches. The gooseneck was torn loose from the semitrailer, and the fifth wheel assembly was separated from the tractor chassis with only minor damage to the tractor. The conveyor boom was separated from the machine, and the machine was dislodged from the trailer.

The right side of the frame of the semitrailer was deformed inward approximately 12 inches. The gooseneck, with the two rams twisted, and the conveyor boom from the machine were propelled northeastwardly and came to rest east of the railroad tracks in the northeast quadrant of the crossing. The remaining portion of the machine was thrown from the semitrailer as the semitrailer rotated in a northwesterly direction. It came to rest just north of the semitrailer in the northwest quadrant. The machine was separated into several sections by the impact and was destroyed. Damage to the truck and cargo was estimated to be about \$359,000.

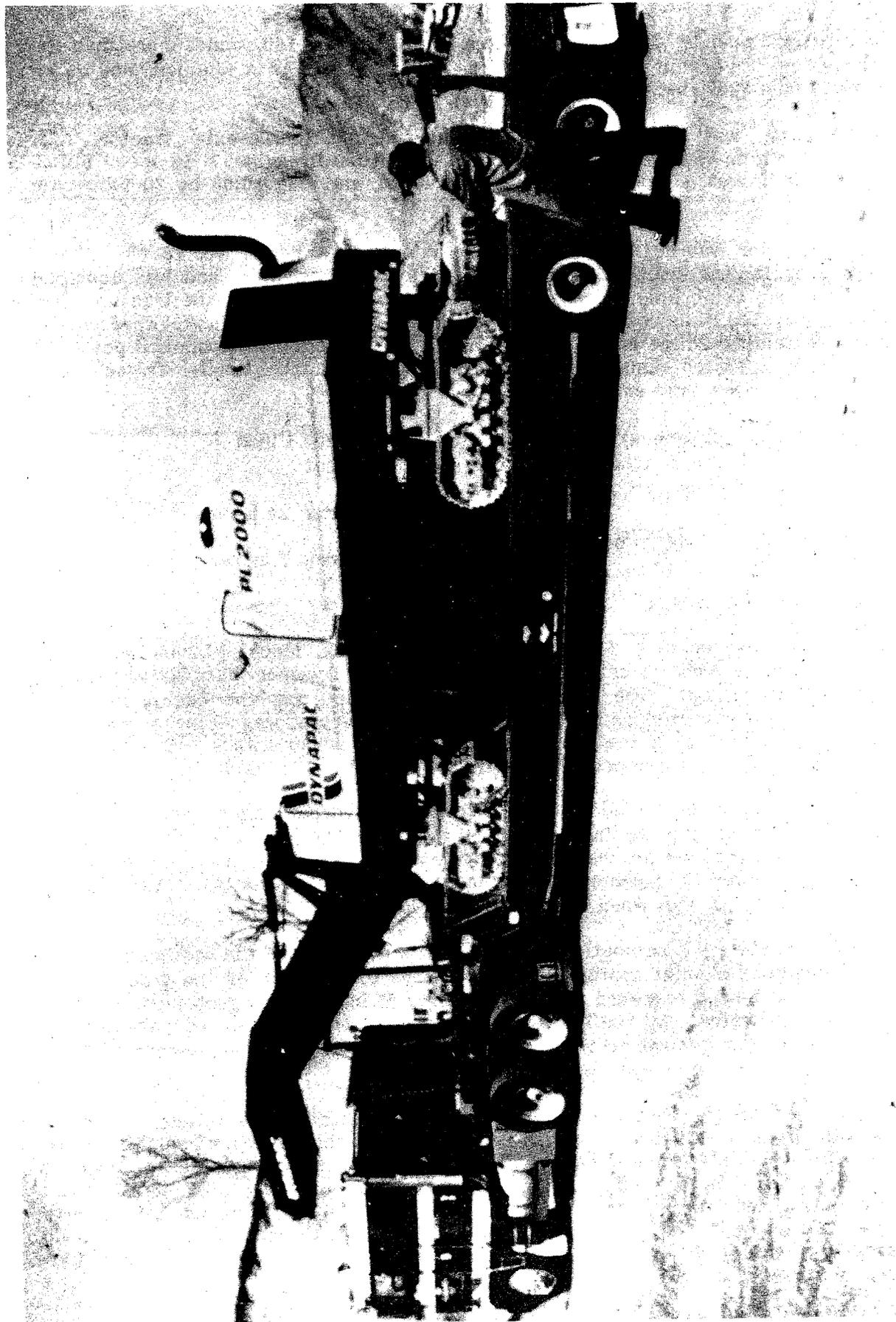


Figure 6.--Dynapac Pavement Profiler machine, similar to the machine involved in this accident, loaded on a lowboy semitrailer.

Personnel Information

SCL Crewmembers.--After being off-duty since 2:17 p.m. on August 22, 1983, the engineer and fireman of train No. 88 went on duty at Rocky Mount, North Carolina, at 4:20 p.m. on August 24, 1983, and worked south on train No. 89 to Florence, South Carolina, where they went off duty at 7:55 p.m. They went back on duty at Florence for train No. 88 at 12:25 a.m. on August 25, 1983.

The conductor was called to duty at Hamlet, North Carolina, at 7:45 p.m. and traveled by taxi to report for duty on train No. 88 at Florence at 11:55 p.m. The two brakemen went on duty for train No. 88 at 11:55 p.m. All had been off duty more than 8 hours. (See appendix B.)

Amtrak Personnel.--Twenty-two Amtrak passenger service personnel were aboard the train. None had responsibility for the operation of the train.

Truckdriver.--The 27-year-old truckdriver was in good health. His Florida chauffeur driver's license, which authorized him to drive tractor-trailer combination vehicles, had been suspended on June 11, 1983. His Florida driver's record revealed that between February 1976 and December 1982 he was involved in three accidents and was convicted of 10 moving and 14 nonmoving traffic violations. (See appendix D.) Between January and March 1983, he was charged with two moving and one nonmoving traffic violations in Broward County, Florida. He failed to appear in court on any of the three charges, which resulted in his driver's license being suspended. He returned to Florida after the accident in Rowland and paid the outstanding fines on August 30, 1983. His license was reinstated the same day. The only restriction on his Florida license required that he wear corrective lenses while driving; he said that he was wearing glasses when the Rowland accident occurred.

Following the accident in Rowland, the investigating police officer charged the truckdriver with driving a motor vehicle without a driver's license and operating a vehicle that exceeded a total width of 96 inches (8 feet). The truckdriver later pleaded guilty to the charges and paid a fine.

The truckdriver had been employed as a truckdriver by the Balogh Company since November 1979. He had driven similar equipment for the past 3 years. Most of his driving for the carrier consisted of transporting heavy equipment in southern Florida. He drove occasional interstate trips.

According to the truckdriver, he left Ft. Lauderdale, Florida, about 12:01 a.m. on August 21, 1983. He drove straight through to Philadelphia, Pennsylvania, where he arrived about 2 a.m. on August 22, and slept for about 6 hours in his tractor cab. He had been on the road for 26 hours and had driven approximately 1,143 miles. Later that morning he delivered a pickup truck in Philadelphia and drove approximately 142 miles to Stanhope, New Jersey. He arrived in Stanhope on the same afternoon and spent that night at a local motel.

The machine was loaded onto the semitrailer on the morning of August 23, 1983, and the truck left Stanhope southbound about 1 p.m. The truck was driven from New Jersey through Pennsylvania and Maryland then into northern Virginia. The driver stopped about 1 a.m. on August 24, 1983. He had covered a distance of approximately 300 miles in approximately 12 hours before stopping to rest. After sleeping in his tractor cab at a northern Virginia location for about 7 hours, he took a shower and ate a meal. About 9 a.m., he proceeded south on I-95. Approximately 1 hour later, the truck was weighed at a scale on I-95.

Between 8:30 p.m. and 9 p.m., he stopped at a truckstop located at I-95 and N.C. Route 20 near St. Pauls, North Carolina. He had traveled about 315 miles, stopping at least once, in about 11 1/2 hours since leaving northern Virginia. He slept in the truck tractor cab until midnight. The truckdriver departed the truckstop about 12:01 a.m. on August 25, 1983.

Because the truckdriver was involved in interstate commerce on this trip, he was subject to the Federal Motor Carrier Safety Regulations (FMCSR) (49 CFR Parts 390-396). The truckdriver's medical examiner's certificate required by 49 CFR 391.41 had expired. The carrier had no driver qualification file on the driver as required by 49 CFR 391.51. The truckdriver had driven more than 10 hours following 8 consecutive hours off duty in violation of 49 CFR 395.3. The truckdriver did not maintain a record of duty status as required by 49 CFR 395.8.

Track Information

The railroad/highway grade crossing at Church Street is about MP 252.9 on the single track main line on the Rocky Mount Division, South End Subdivision of the Seaboard System Railroad. (See figure 7.) Maintenance of the crossing is the responsibility of the railroad. The track structure consists of 132-pound, continuous welded rail laid on wood ties. The rails rest on 7 3/4-inch, double-shoulder tieplates and are secured to the ties by two cut spikes per tieplate. The ties are box-anchored with base-applied rail anchors. The track is stone ballasted with full cribs and at least 12-inch shoulders. The track is maintained to meet or exceed class 5 track safety standards of the Federal Railroad Administration (FRA). The track is tangent for more than 3 miles in each direction and is on a northward ascending grade of about 0.17 percent.

Two automatic railroad crossing gates with flashing lights are located within the railroad right-of-way. One signal mast is located in the northeast quadrant; its flashing lights are back to back, aimed east and west on Church Street. The other signal mast is in the southwest quadrant with back-to-back flashers aimed east and west on Church Street and north and south along South Railroad Street. The sensor approach circuits for the warning devices are located on the track 3,800 feet from each side of the crossing. The whistle post was located 1,550 feet south of the crossing.

Roadway Information

U.S. Route 501 and N.C. Route 130 enter the west limits of Rowland as a single roadway; both highways traverse easterly on Main Street and cross the north-south Seaboard single track main line track at grade near the central business area. One block east of the Main Street grade crossing, U.S. Route 501 traffic is diverted southerly onto Bond Street. N.C. Route 130 continues eastwardly on Main and connects with north-south I-95 about 1 mile east of the Rowland city limits. Two additional crossings at grade with the Seaboard track in Rowland are at Chapel Street, 1 block north of Main Street, and Church Street, 2 blocks south of Main Street.

During the week preceding the day of the accident, Seaboard maintenance crews were resurfacing the Main Street and Church Street crossings. Resurfacing of the Church Street crossing was completed on August 22, 1983. On August 23, 1983, North Carolina Department of Transportation (NCDOT) employees constructed a detour that closed a section of Main Street in approach to and at the crossing so that a Seaboard maintenance crew could begin resurfacing at that location. A Class III barricade, with a legend showing "Road Closed" and a large arrow pointing right, was placed in the center of Main

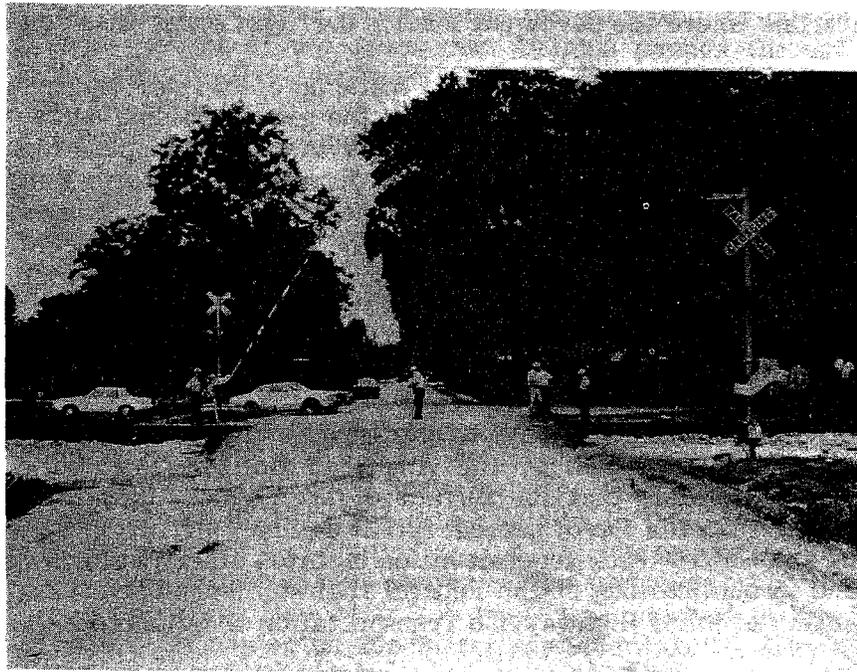
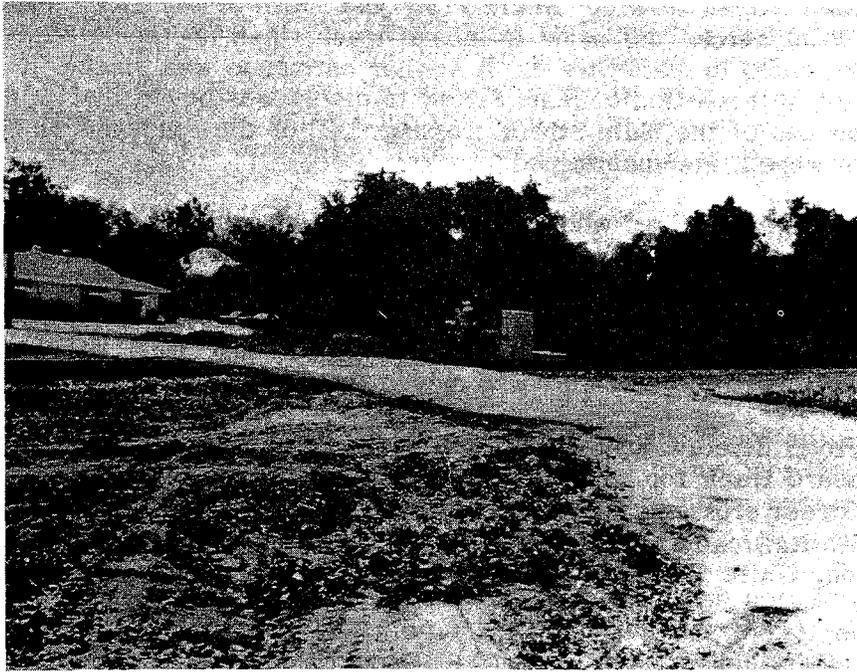


Figure 7.-- West approach to track (above)
and east approach to track (below).

Street facing eastbound traffic at intersecting Walnut Street (two blocks west of the grade crossing). (See figure 3.) A series of signs with arrows diverted eastbound traffic southerly on Walnut Street to N.C. Route 1196 (just south of the city limits), eastwardly on N.C. Route 1196 across the same Seaboard track, then northerly on Bond Street (1 block east of the track) to Main Street. A similar barricade was placed in the center of Main Street at the intersection of Bond Street to divert westbound traffic over the same route to the west side of the Main Street crossing. All of the roadways on the 1.36-mile-long detour route were State-maintained.

The NCDOT sign installer, who had erected the detour signs, inspected the route the morning of August 24, 1983. He found all of the signs and barricades in place. Later that day, Seaboard personnel removed the pavement from the N.C. Route 1196 crossing and closed it to motor vehicle traffic. The detour signs were moved 2 blocks east on Main Street to the intersection with South Railroad Street just west of the Main Street crossing. Inquiries failed to determine who moved the signs.

South Railroad Street begins at Main Street and extends southerly along the west side of the Seaboard track for a distance of 5 blocks. Two blocks south of Main Street, South Railroad Street crosses east-west Church Street about 40 feet west of the Seaboard track. Both South Railroad Street and Church Street are two-lane paved city streets. At their intersection, South Railroad Street is 21 feet wide and Church Street is 24 feet wide.

The Seaboard track is at a slightly higher elevation than South Railroad Street. Eastbound traffic on Church Street must climb approximately 1.06 feet over a distance of 40 feet to reach the level of the west rail (the highest point of the grade crossing surface). The slope then descends 0.87 foot over a distance of 40 feet east of the track. The major hump in the crossing pavement begins approximately 23 feet west of the track centerline where the pavement is 1.01 feet lower than the west rail; it ends 12 feet east of the track centerline where the pavement level is 0.47 foot lower than the west rail.

The profile of the crossing pavement was made up of two vertical curves connected by a 35-foot-wide camelback hump that included the grade crossing surface; the highest elevation was at the west rail of the track. The elevation of the uphill highway gradient on the west side of the crossing over the 40-foot distance from South Railroad Street to the west rail increased 1.06 feet (2.65 percent grade); 1.01 feet of the elevation increase is developed over the last 20 feet traveled to the west rail (5 percent grade). The elevation of the downhill gradient east of the west rail decreased 0.47 foot over the first 15 feet traveled (3.13 percent grade); a downhill gradient averaging about 1 percent continued easterly. The 35-foot-wide elevated hump developed a 207.30-foot radius vertical curve profile in the roadway at the crossing. (See figure 5.)

Section 1.2, "Profile and Alignment of Crossings and Approaches," of the "Manual for Railway Engineering" published by the American Railway Engineering Association (AREA) states, "It is desirable that the surface of the highway be not more than 3 in. higher nor 6 in. lower than the top of nearest rail at a point 30 ft. from the rail, measured at right angle thereto, unless track superelevation dictates otherwise." Similar guidelines could not be found in publications of the Federal Highway Administration (FHWA) or the American Association of State Highway and Transportation Officials (AASHTO).

Postcrash examination of the crossing revealed three straight-line pavement gouge marks, each approximately 6 feet in length. The marks began in the eastbound lane of Church Street about 5 feet beyond the east rail and extended across the track in a

northwesterly direction for a distance of approximately 40 feet to the westbound lane on the west side of the tracks. The marks were in straight alignment and crossed the track near the center of the eastbound lane at an angle of approximately 68 degrees. The length of the marks and their straight alignment matched the configuration of the two lowest longitudinal frame members that are spaced equally at the centerline of the semitrailer. Tire tread imprints on the ground near the east pavement edge of South Railroad Street were identified as marking the path of the left side tires of the trailer as the truck negotiated the left turn onto Church Street. (See figure 4.)

There was no current average daily traffic count on record for the Church Street grade crossing. No accidents had been recorded since the installation of warning devices in April 1981.

Method of Operation

Train.--Trains in the accident area are operated according to the wayside automatic block signals of a centralized traffic control system. The maximum authorized speed for Amtrak passenger trains is 79 miles per hour. Eighty trains were operated through Rowland in the week prior to the accident, including two Amtrak passenger trains each way each day.

Truck.--The owner of the truck had purchased the Balogh company in April 1983. The company holds no authority from the Interstate Commerce Commission (ICC) to provide interstate for-hire transportation service as it was performing at the time of the accident. There is no evidence that the Bureau of Motor Carrier Safety (BMCS) of the FHWA was aware that Balogh was operating in interstate commerce.

In preparation for transporting the construction equipment from New Jersey to Florida, the Balogh company applied for and was issued a special permit by the State of North Carolina on August 19, 1983, authorizing the company to operate an oversized vehicle with a gross weight of not more than 103,000 pounds through the State and authorizing travel during daylight hours on I-95 only (see appendix E). Similar permits were also obtained for New Jersey, Pennsylvania, Maryland, Virginia, South Carolina, and Georgia. The motor carrier had a standing permit for the State of Florida.

According to the truckdriver, the owner of the motor carrier gave him specific instructions for the trip 3 days before he left Ft. Lauderdale. First, the owner required the driver to weigh the tractor-semitrailer unit; its empty weight was 45,340 pounds. Then, in the presence of the driver, the owner consulted a brochure on the pavement profiler machine and noted its weight as 61,000 pounds. The gross weight of the truck with the machine loaded was projected by the owner to be in excess of 106,000 pounds. According to the truckdriver, they both were aware that the gross weight exceeded that permitted by the State of North Carolina. The truckdriver stated that the owner told him the truck was going to be heavy and that he would be unable to get permits for a vehicle of 106,000 pounds in North Carolina and South Carolina. He instructed the driver to stay off the weigh scales in those States. The driver said he left Florida intending to pass the weigh scales in North Carolina and South Carolina while transporting the machine. The owner's instructions were witnessed by a second carrier employee who verified the driver's statements. The driver stated that after the truck was weighed in Virginia on the day preceding the accident, he contacted the motor carrier owner by telephone and advised him that the exact gross weight of the unit was 105,820 pounds. According to the truckdriver, the owner reiterated his previous instructions to stay off the North Carolina weigh scales.

During an interview on September 14, 1983, the owner of the motor carrier denied to Safety Board investigators that he gave the driver any instructions to bypass the scales. The owner also stated that his company was primarily an intrastate motor carrier. He said that he did not have a copy of the FMCSR and was not aware that he was subject to the FMCSR because he only occasionally engaged in interstate commerce. The owner was advised that he was required to comply with the FMCSR when operating in interstate commerce. According to the Region IV Office of the BMCS, a copy of the FMCSR was mailed to the carrier shortly following this interview.

On December 12, 1983, BMCS inspectors conducted an audit at the carrier's office to determine the degree of compliance with the FMCSR. The audit revealed that the motor carrier had no driver qualification files, failed to require its drivers to prepare daily logs, failed to report an accident to the BMCS, and kept no maintenance records on its equipment. The inspectors furnished the motor carrier with a copy of their findings and orally warned the owner that future violations of the FMCSR would subject his company to applicable penalties. The owner advised the inspectors that he did not intend to perform any interstate operations in the future.

On December 22, 1983, a BMCS inspector found one of Balogh's tractor lowboy semitrailer combination units in Charlotte, North Carolina. The unit was en route from Ft. Lauderdale to Baltimore, Maryland, transporting a pavement roller. The truckdriver had no medical examiner's certificate in his possession and was not keeping a record of duty status for the trip. He advised the inspector in a written statement that he had been driving for Balogh for 6 months, that he had not been medically examined, and that he had not prepared daily logs for any trip while driving for Balogh. The driver said that he was familiar with the FMCSR but had failed to comply with those requirements while driving for Balogh because the owner had never instructed him to do so. The BMCS has taken no enforcement action against the motor carrier.

Emergency Response

Fire equipment and ambulances arrived on the scene about 1:15 a.m. A command post was set up in a parking lot in the southeast quadrant of the crossing. As the passengers left the train, emergency personnel questioned them as to injury. With the exception of one passenger who was removed from the train on a stretcher, no injuries were reported until about 1 hour following the accident. Diesel fuel leaked from the derailed locomotive. The fire department covered the fuel oil with foam, and there was no fire.

Meteorological Information

It was dark with artificial street lighting at the time of the accident. The sky was clear, and the roadway was dry. Visibility was not restricted.

Medical and Pathological Information

Of the 390 persons on the train, 29 reported injuries. Seven passengers and three Amtrak employees were transported to a hospital in Lumberton, North Carolina. Eight passengers and three Amtrak employees were transported to a hospital in Dillon, South Carolina. Two passengers were treated on scene by a local doctor. The remaining six persons reported injuries either en route from the scene or some days following the accident.

Most of the injuries reported consisted of head, chest, shoulder, back, and leg pains. Some cuts and bruises were treated on scene. One person was admitted to a local hospital, treated, and released the next day. No injuries were reported by the locomotive crew.

Survival Aspects

The severity of the accident and the resultant injuries were limited by the fact that the passenger cars remained coupled, in line, and upright. The accident might have been catastrophic if the trailer containing the 61,000-pound machine had not separated from the tractor as it did when it was struck by the train.

Tests and Research

A postaccident inspection determined that the lead locomotive unit's throttle handle was in the sixth position, the reverser was in forward, the automatic brake handle was in emergency, the independent brake handle was in the fully applied position, the headlight switch was on bright, and the strobe light was in automatic.

Because the speedometer cable had been rendered inoperative during the Ridgeland accident, the speed indicator/recorder could not be used to determine the actual speed of the train at the time of the accident. A review of other parameters being recorded (electric traction load in amperes, automatic brake application, and throttle positions) revealed: (1) the last entry on the tape showed a drop in load from about 550 to 0 amps; (2) an emergency brake application and throttle shutoff; (3) a drop in load and 14 psi brake with a throttle reduction about 8 minutes before the emergency brake application; (4) a brake release; (5) an increase in the throttle to the eighth position; (6) an increase in amps to 600; (7) the brakes applied; and (8) throttle off.

ANALYSIS

The Accident

No evidence of mechanical defects that could have contributed to the accident were found in either the truck or train equipment. The incidents involving train No. 88 in Georgia and South Carolina did not contribute to the North Carolina accident. The train was being operated in accordance with the operating practices of the Seaboard System Railroad.

The time of the accident was established by the Rowland police officer's call to his dispatcher at 1:10 a.m. By using the parameters still being recorded on the event recorder tape on the locomotive after the speedometer became inoperative, it was established that a brake application was made at 1:02 a.m. This is consistent with the engineer's statement that he slowed to 30 mph in compliance with a slow order 6 miles south of the accident site. It also was established that the throttle was advanced to the eighth position at 1:06 a.m. Entries on the event recorder tape of the same locomotive and train consist before the speedometer became inoperative indicated that there were two previous instances where the throttle was advanced following a speed reduction to 45 mph by a brake application. In each instance, it required 4 miles and about 7 minutes to regain a speed of 75 mph. Therefore, it reasonably can be deduced that the engineer overestimated his speed at 65 mph at the time the brakes were placed in emergency and that the train actually was moving at a somewhat slower speed at that moment.

It is not likely that the speed of the train slowed appreciably in the 1,200 feet it traveled from the time the engineer first recognized that the semitrailer was blocking the crossing, put the train into emergency braking, and lay on the floor of the cab to the time the collision occurred. It is evident that the train was well within the prescribed speed limit of 79 mph and that the semitrailer was stuck and blocking the crossing for a period of about 5 to 10 minutes preceding the arrival of the train.

Although the truckdriver was driving with a suspended driver's license, he was experienced in operating the vehicle involved in the accident. In his attempt to circumvent the requirement for the truck to be weighed at the scales on I-95, the truckdriver traveled over a route that was not authorized by the special permit issued by the State of North Carolina for the truck's operation. The truck probably could have traversed the principal grade crossing on Main Street in Rowland which had been barricaded because of the repaving work. When the truckdriver had to turn south and then make a left-hand turn onto another grade crossing 2 blocks away, the approach was made on a vertical curve. As the semitrailer followed the truck-tractor, it angled across the approach with its wheels off-tracking leftward of the tractor. In its forward movement, the left-side wheels of the semitrailer crossed the unpaved shoulder in the northwest quadrant of the intersection.

The longest suspended span between the six axles of the combination truck was the distance of 36 feet 4 inches from the center of the tractor tandem axle tires (where the semitrailer kingpin was resting) and tires on the first axle of the semitrailer. The bottom side of the center framing of the semitrailer was only 7 inches above the roadway between those two axle locations. Because of the long span (36 feet 4 inches) and the 7-inch frame-to-roadway clearance of the semitrailer, the combination would have become lodged on any vertical curve (hump) having a radius of less than 283.17 feet. The vertical curve at the Church Street grade crossing had a radius of only 207.30 feet. As the truck-tractor passed over the track and began its travel down the east approach, the semitrailer moved across the track. The bottom side of the two low center-spaced longitudinal frame members of the semitrailer contacted the rail and stopped the unit with the forward end of the semitrailer astride the track.

Grade Crossing Profiles

Some 3 months after the Rowland accident, the Safety Board investigated a similar accident. Shortly before 3 p.m. on November 30, 1983, northbound Amtrak train No. 98 struck a C.A. Earthmover Company tractor-lowboy semitrailer combination truck that had become lodged on the Seaboard single main track at a grade crossing on county road 318 at Citra, Florida. One diesel locomotive unit and four passenger cars of the nine-car train consist were derailed. The truck-semitrailer and its cargo were damaged substantially. Seven of the 96 passengers aboard the train were taken to a local hospital; all were treated and released. Twenty-nine other passengers also claimed injury. Neither the truckdriver nor his helper was injured. There was no fire.

Active warning devices were installed at the crossing in Citra. The truck was loaded properly and did not have any mechanical defects. The truck's owner had applied for and received a State of Florida permit which allowed the truck to be operated on a prescribed route. The truck was on the prescribed route at the time of the accident. There was no evidence to indicate that the driver operated the truck in a manner that would have contributed to it being lodged on the crossing.

The railroad track in the Citra accident was at a higher elevation than county road 318. On the east approach, the westbound truck traveled up a grade measuring an overall average of 3.6 percent--6.5 percent over the last 26 feet. It crossed a 20-foot-wide hump containing the track and started down a grade measuring an overall average of 6.4 percent--11.9 percent in the first 31 feet. The truck-tractor moved down the 11.9 percent grade as the semitrailer traveled over the tracks. The bottom side of the low-riding sideframe members of the semitrailer contacted the crossing surface and stopped the unit with the forward end astride the track. The surface area extending about 15 feet from the track on each approach had been paved over at least twice. The layering of asphalt created the surface hump profile. Interviews with county and railroad officials revealed that neither communicated with the other about maintenance at this crossing. However, it is reasonable to assume that the railroad, as in the past, had done the paving adjacent to the track.

The Rowland and Citra accidents demonstrate the need to provide adequate vehicle ground clearance in designing and maintaining roadway profiles. Crossing profiles that consist of a vertical curve can impede the operation of a vehicle if the distance between any two axles of a vehicle span the hump and the height of the hump exceeds the vehicle's ground clearance. Grade crossings that have a roadway profile that may be hazardous to certain vehicles can be identified and, once identified, improvements can be made. Although the AREA has a recommended practice on the profile and alignment of crossings and approaches stated in its "Manual for Railway Engineering," it was not followed at either the Rowland or the Citra crossings. The Safety Board is not aware of any standard highway design specifications directed to providing adequate vehicle ground clearance on highways or at grade crossings having hump profiles.

The Rowland and Citra accidents also demonstrate the need for coordination between railroads and highway departments concerning railroad/highway grade crossing maintenance. While the maintenance of the rails is the responsibility of the railroad, repaving of a crossing may be done either by the railroad or the State or local highway department, depending on agreements negotiated by the parties. Apparently, some jurisdictions do not take into consideration the fact that changes in the crossing profile may occur as a result of maintenance or that the changes in the profile may adversely affect certain vehicles that use the crossing.

In January 1984, the Florida Department of Transportation (FLDOT) created an internal committee to study the problem of hazardous grade crossing profile conditions such as those illustrated by the Citra and Rowland accidents. The formation of the committee followed the Safety Board's investigation of the Citra accident and discussions held by Board investigators with local and State officials.

The committee was mandated to pursue an aggressive program of corrective action. Its proposed broad-based actions, which will require participation by the railroads, local governments, truckers, and the FLDOT, are:

1. Developing a standard roadway (profile) design for grade crossings;
2. Identifying crossings currently not in compliance with the standard;
3. Encouraging local governments to bring crossings into compliance;
4. Suggesting to the railroads that they develop and implement a procedure for coordination and cooperation with local and State governments to assure the integrity of the profiles at grade crossings at which maintenance has been performed on the track;

5. Developing and implementing the installation of warning signs at crossings identified as having hazardous surface hump profiles; and
6. Encouraging the Florida Truck Association to inform its membership of the hazards of surface hump profiles at grade crossings.

In August 1984, the FLDOT was actively engaged in implementing all aspects of the program. Those aspects that involve participation of the railroads, truckers, and local governments have taken priority and are on-going.

There is no quantitative data that would statistically substantiate that surface hump profiles at grade crossings are a national problem. However, the circumstances in both the Rowland and Citra accidents, the actions planned by the FLDOT, and the concern expressed by other State Departments of Transportation that Safety Board investigators contacted in the course of this investigation lend support to the Safety Board's belief that the hazard is significant enough to warrant corrective measures comparable to those in the FLDOT program.

Another approach to the problem would be to establish a minimum ground clearance for all trailers. The need for adequate ground clearance in the manufacture of cargo tank vehicles is recognized in the Federal Hazardous Materials Regulations, 49 CFR 178.340(8)(d)(2), which states:

Minimum Road Clearance. The minimum allowable road clearance of any cargo tank component or protection device located between any two adjacent axles on a vehicle or vehicle combination shall be at least 1/2 inch for each foot separating such axles and in no case less than 12 inches.

If the above regulation had been applicable to the semitrailers involved in the Rowland and Citra accidents, the ground clearance of the semitrailers would have been adequate to allow them to cross over the tracks without difficulty. At the very least, motor carriers who transport heavy equipment on vehicles with low ground clearance need to be alerted to the potential danger at some crossings.

The Motor Carrier

The carrier owner knew in advance of the trip that resulted in this accident that the truck would be over the gross weight permitted in North Carolina, and he dispatched the driver with instructions to bypass the weigh scales in North Carolina. The motor carrier did not have authority from the ICC to engage in for-hire interstate transportation. Additionally, the company failed to comply with requirements of the FMCSR applicable to all interstate motor carriers of property. The carrier had no FMCSR-required driver qualification file or a current medical examiner's certificate on file for the truckdriver to assure that his background, driving experience, and physical condition qualified him to drive in interstate commerce. In further contravention of the FMCSR hours-of-service regulations, the truckdriver was not preparing a record of duty status and was permitted by the motor carrier to drive excessive hours before taking required periods of rest. In addition, his Florida driver's license was under suspension. The BMCS had no knowledge of the motor carrier, and the owner of the carrier said that he did not believe that he was subject to the FMCSR. Even after BMCS inspectors warned the owner on December 12, 1983, that future violations of the FMCSR would result in penalties, the BMCS found one

of the carrier's trucks operating in interstate commerce on December 22, 1983. These actions demonstrate the motor carrier's disposition to ignore safety and regulations promulgated to ensure safety. It dramatizes again the need for increased enforcement activity by Federal and State regulatory authorities who are responsible for ensuring the safe operation of vehicles moving in interstate commerce.

In its report of an accident in 1977 involving a carrier and truckdriver who were not operating in compliance with the FMCSR, 2/ the Safety Board stated:

All carriers operating vehicles in interstate commerce are required to comply with the FMCSR and should be known to the BMCS. Some procedure which would inform the BMCS of the identity of carriers, vehicles, and drivers under its jurisdiction is needed. This would enable the BMCS to serve these carriers and/or owner-operators with the safety regulations and make them aware of their responsibilities under the FMCSR. It would also provide the BMCS with more accurate information concerning the carriers to be supervised and inspected, and enable it to budget and plan for a more effective and efficient safety program.

As a result of its investigation of another accident in 1977 involving a carrier that was not complying with the FMCSR, 3/ the Safety Board recommended on May 16, 1978, that the FHWA:

Establish a procedure that will serve to identify all carriers, vehicles, and drivers under Federal Highway Administration jurisdiction. (H-78-40)

Establish a procedure that will serve to inform all carriers and drivers under Federal Highway Administration jurisdiction of their responsibilities in regard to the Federal Motor Carrier Safety Regulations. (H-78-41)

The FHWA replied on October 30, 1978, that it identified carriers through information supplied by the ICC and through equipment compliance checks, noise compliance checks, and other sources. The FHWA continued:

... any program to identify all drivers and vehicles used in interstate commerce is infeasible at current staffing and funding levels. . . . there are some carriers who deliberately or unknowingly . . . operate in interstate commerce without considering applicable regulations. . . . Within the limits of available resources, FHWA considers that the present procedures . . . are responsive and effective.

The FHWA said that it would instruct its regional administrators to take steps to review the entry and registration requirements of each State within their region and to assure that an exchange of information about commercial carriers' identities is part of standard operating procedure.

2/ Highway Accident Report—"Tractor-Semitrailer/Schoolbus Collision and Overturn, Rustburg, Virginia, March 8, 1977" (NTSB-HAR-78-1).

3/ Highway Accident Report—"Ford Construction Company Truck-Semitrailer/Dodge Van Collision, Marion, North Carolina, May 12, 1977" (NTSB-HAR-78-3).

The Safety Board responded, in a January 29, 1979, letter, that the FHWA should devise a more systematic approach to the problem. The Safety Board continued:

We do not believe a statement of the status quo to be an acceptable solution to the problem. We encourage the FHWA to seek ways and means to monitor the activities of drivers involved in interstate commerce through registered carriers, through State agencies, or through an increased BMCS effort.

In a letter of April 17, 1979, the FHWA stated that it would seek to increase driver awareness of the FMCSR through the BMCS safety inspection and weighing demonstration program.

The Safety Board responded on May 15, 1979, concerning the activities cited by the FHWA for identifying new carriers, that,

[It] would be meaningful [to] relate the implementation of each FHWA source activity to an increased yearly identification of previously unknown carriers. . . . Through this kind of relationship, it could be shown that the use of programs designed to achieve other goals has effectively worked to further the identification of motor carriers under the jurisdiction of the FMCSR.

In a report issued on November 17, 1983, ^{4/} the Government Operations Committee of the U.S. House of Representatives concluded that the BMCS "can't keep track of all motor freight companies and can't inspect more than 5 percent of all motor carriers annually."

The FHWA has an automated management information system (MIS) which is designed to enable the BMCS, through its regional and division offices, to identify motor carriers engaging in interstate commerce. Some of the FHWA regional offices have placed access to the MIS in some of the FHWA division offices where a BMCS officer-in-charge is located. FHWA Region IV has not implemented the MIS in its division office in Florida. Providing the MIS at the BMCS division level in each State would be an important step toward the identification of all motor carriers subject to the FMCSR because the BMCS field personnel would not only have access to the information already stored in the MIS but would be able to enter additional relevant data into the MIS as well.

CONCLUSIONS

Findings

1. No evidence of mechanical defects that could have contributed to the accident was found in either the truck or train equipment.
2. The incidents involving train No. 88 in Georgia and South Carolina did not contribute to the North Carolina accident.
3. The train was being operated in accordance with the operating practices of the Seaboard System Railroad.

^{4/} Committee on Government Operations Report, "Improving the Effectiveness of the Bureau of Motor Carrier Safety and Its Enforcement of Hazardous Materials Regulations," Congress of the United States, Washington, D.C., November 18, 1983.

4. The train was traveling within its maximum permissible speed on the approach to the crossing.
5. The truckdriver was not licensed properly at the time of the accident and was in violation of the hours of service regulations of the Federal Motor Carrier Safety Regulations.
6. The truck was not being operated in accordance with the special permit issued by the State of North Carolina for the vehicle's operation in that State.
7. The truck was not being operated in accordance with the requirements of the Federal Motor Carrier Safety Regulations.
8. The low ground clearance of the semitrailer combined with the hump of the grade crossing caused the semitrailer to become lodged on the track.
9. There was no evidence uncovered of the existence of a standard highway design plan to provide adequate vehicle ground clearance on highways and/or at grade crossings having vertical curve profiles.
10. Although the American Railway Engineering Association has a recommended practice on the profile and alignment of crossings and approaches stated in its "Manual for Railway Engineering," it was not followed at the Rowland, North Carolina, crossing.
11. Motor carriers who transport heavy equipment on vehicles with low ground clearance need to be alerted to the dangers of railroad/highway grade crossings with surface hump profiles.
12. Because of the limited ability of the Bureau of Motor Carrier Safety to identify motor carriers engaged in interstate commerce who seek to conceal their status or who are unaware that they are subject to Federal regulations, the Bureau's efforts to enforce safe operating practices are hampered.

Probable Cause

The National Transportation Safety Board determines that the probable cause of this accident was the deliberate deviation of the truckdriver from the route prescribed on a permit for the movement of the oversized vehicle and an ensuing detour onto a railroad/highway grade crossing that would not accommodate the low ground clearance of the vehicle.

RECOMMENDATIONS

As a result of its investigation of this accident, the National Transportation Safety Board made the following recommendations:

--to the Federal Highway Administration:

Issue an On Guard Bulletin alerting motor carriers of the hazards of railroad/highway grade crossings with high surface hump profiles.
(Class II, Priority Action) (H-84-66)

Provide each Bureau of Motor Carrier Safety division office with access to the automated management information system (MIS) to facilitate identification of all motor carriers engaged in interstate commerce in their respective jurisdictions. (Class II, Priority Action) (H-84-67)

Develop additional information sources through which motor carriers engaged in interstate commerce can be identified and placed expeditiously into the automated management information system (MIS). (Class II, Priority Action) (H-84-68)

—to the American Association of State Highway and Transportation Officials:

Review the State safety program dealing with hazardous grade crossing profile conditions now underway in Florida, and promote the adoption within each State of this program or a comparable program developed by an appropriate AASHTO committee. (Class II, Priority Action) (H-84-69)

--to the Association of American Railroads:

Establish the specifications stated in Section 1.2, "Profile and Alignment of Crossings and Approaches," of the "Manual for Railway Engineering" of the American Railway Engineering Association as the minimum acceptable specifications for railroad/highway grade crossings. (Class II, Priority Action) (R-84-35)

Encourage all member railroads to coordinate activity related to track maintenance with local and State governments to preserve the integrity of the profiles at railroad/highway grade crossings. (Class II, Priority Action) (R-84-36)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

/s/ JIM BURNETT
Chairman

/s/ PATRICIA A. GOLDMAN
Vice Chairman

/s/ G. H. PATRICK BURSLEY
Member

/s/ VERNON L. GROSE
Member

VERNON L. GROSE, Member, filed the following concurring and dissenting statement:

The purpose of determining a statement of probable causation is to enable and direct postulation of recommended actions that would either preclude or reduce the possibility of a similar accident in the future. It is obvious that the adopted probable cause fails to take full advantage of extensive resources that were expended to investigate this accident. Importantly, not only is the adopted probable cause too narrow

in scope, it is actually incorrect. Neither the "deviation" of route nor the "detour" of the tractor-trailer combination over a railroad grade crossing are sufficient to have caused the accident. It would not have happened had not the trailer been stranded on the track.

The investigation and analysis of this accident clearly show that it was caused by several factors, all of which should be addressed or corrected. Therefore, the following statement is offered as an alternative:

The National Transportation Safety Board determines that the probable causes of this accident were (a) a deliberate detour by a truckdriver with intent to violate highway overweight restrictions, (b) driving a truck onto a railroad/highway grade crossing that would not allow trailer ground clearance, (c) stranding a trailer across railroad tracks, and (d) lack of warning to an oncoming train when time was available to do so. Contributing to the potential for the accident were (a) lack of driver information on the grade crossing hump, and (b) confusion of design and control responsibility for railroad/highway grade crossings between railroad management and public officials.

August 9, 1984

APPENDIXES
APPENDIX A
INVESTIGATION

Investigation

The National Transportation Safety Board was notified of the accident early on the morning of August 25, 1983. Investigators were dispatched from the Safety Board's New York and Atlanta Field Offices. Safety Board investigators were assisted by representatives of the Rowland, North Carolina Police Department, the Federal Railroad Administration, the Bureau of Motor Carrier Safety, the Seaboard System Railroad, and the National Railroad Passenger Corporation (Amtrak).

Deposition/Hearings

There were no depositions taken nor was a hearing held in conjunction with this investigation.

APPENDIX B

TRAINCREW INFORMATION

Engineer

The locomotive engineer, 64, entered service with a predecessor of the Seaboard Coast Line Railroad Company on January 1, 1941, as a fireman. He was qualified as an engineer on March 9, 1944.

Fireman

The locomotive fireman, 39, entered service with the Seaboard Coast Line Railroad Company as a switchtender on October 10, 1968. He transferred to fireman on December 12, 1970, and was qualified as an engineer on August 12, 1983.

Conductor

The conductor, 35, entered service with the Seaboard Coast Line Railroad Company on May 19, 1968, as a clerk. He transferred to brakeman on March 3, 1977, and was qualified as a conductor on September 19, 1980.

Head End Brakeman

The head end brakeman, 22, entered service as a brakeman with the Seaboard Coast Line Railroad Company on January 31, 1963, and was qualified as a conductor on December 2, 1966.

Rear Brakeman

The rear brakeman, 42, entered service with Seaboard Coast Line Railroad Company on September 9, 1966, and was qualified as a conductor on August 20, 1969.

APPENDIX C

TRUCK WEIGHT REPORT

FORM T. & B. - 14 REV. 11-1-81

Commonwealth of Virginia DEPARTMENT OF HIGHWAYS AND TRANSPORTATION Truck Weight Report

APPENDIX Weighing Station No. 08 Mobile Unit No. 212

Summons Number E619800, Route I 95, Location DUMFRIES, County PRWM, City 76, 212

Table with columns: Weights, Axles, Time & Date, Axle Spacings, Weight Limits. Includes handwritten weights like 8,320, 46,160, 51,340 and dates like 24 AUG 83.

Violation section with checkboxes for Axle, Tandem, Gross, Lic, etc. Includes vehicle registration details like State of FL and License No. 0A0746.

Owner: S L BALOUGH TRUCKING CO, Address: DAVIE, FLA

Driver: BATTEN JR, CHARLES FOWARD

Permit 5, Permit Type 0L, Permit No. 81814228

Drivers License No. 8350223553, Commodity Carried DORM, Escorted 0009

SCC Number TRMP 2035 EXP 8/29/83, Trooper: WILLS, No. 1516

Leased to: Date of Trial 11-14-83, Interviewer F J HOWARD

Origin: STANHOPE NJ, Destination: Ft. Lauderdale FL, Weigh Party Chief: W S CORNELL

REMARKS: SINGLE AXLES 24,000 - 2 AXLES 44,000 - 3 AXLES 53,500 GROSS 108,500

OFFICE COPY

APPENDIX D

TRUCKDRIVER INFORMATION

The truckdriver, 27, was employed as a tractor semitrailer driver by S.L. Balogh Trucking Co., Inc., in November 1979. He had not been qualified by the motor carrier as an interstate driver.

TRUCKDRIVER'S FLORIDA DRIVER'S LICENSE RECORD

<u>Accident/Offense Date</u>	<u>Accident/Offense</u>
02/13/76	Careless Driving - Accident
09/19/77	Speeding 73/55
09/20/77	Failed to Obey Traffic Signal/Sign
04/21/78	Accident - No Traffic Violation
08/28/79	Speeding 76/55
09/06/79	Improper Tag or Registration Certificate
11/09/79	Driving Too Fast For Conditions - Accident
11/15/79	Improper Tag or Registration Certificate
12/11/79	Improper Tag or Registration Certificate
01/16/80	Improper Tag or Registration Certificate
01/28/80	Improper Tag or Registration Certificate
01/28/80	No Inspection Sticker
07/12/80	No Inspection Sticker
10/03/80	No Inspection Sticker
12/16/80	Improper Tag or Registration
12/16/80	Improper Tag or Registration
12/20/80	No Inspection Sticker
03/22/81	Failed to Yield to Emergency Vehicle
03/22/81	Speeding 73/55
04/25/81	Failed to Obey Traffic Signal/Sign
05/17/81	Improper Tag or Registration Certificate
06/27/81	Driving While License Suspended
07/17/81	Improper Tag or Registration Certificate
11/09/81	Over-Width/Length/Height/Weight
08/30/82	Speeding 60/45
01/26/83*	Failed to Dim Headlights
02/28/83	Failed to Appear in Court
06/11/83	Driver's License Suspended - Notice Given
02/24/83*	Expired tag
03/29/83	Failed to Appear in Court
07/02/83	Driver's License Suspended - Notice Given
03/05/83*	Failed to Yield - Left Turn
04/11/83	Failed to Appear in Court
08/06/83	Driver's License Suspended - Notice Given

*Fines on the three noted citations were paid and driver's license was reinstated on 08/30/83

Recap: 12 moving traffic violations
 15 nonmoving traffic violations
 3 accidents

APPENDIX E
PERMIT ISSUED
BY STATE OF NORTH CAROLINA

APPENDIX

SENT VIA TRANSCEIVER - TRUCKERS HOT LINE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS - AUTHORIZED PERMIT

Raleigh, N. Car. August 19, 1983 11:15
Date Time

S. L. Balagh Trucking Co.
Fort Lauderdale, FLA
305-584-8022

ANY VIOLATION OF PERMIT LIMITATIONS, INCLUDING SPECIAL CONDITIONS, WILL RENDER THIS PERMIT NULL AND VOID AND THE PERMITTEE BECOMES LIABLE FOR ANY FINES OR CITATIONS AS IF NO PERMIT HAD BEEN ISSUED.

This permit 83-13,962 Covering movement of

6 axle Tractor Trailer hauling Pavement Profiler from VA line on I-95 to SC line

DA6704 - Truck THIS PERMIT VALID ONLY WHEN VEHICLE
LO9769 - Trailer TO WHICH ISSUED IS LICENSED FOR THE
MAXIMUM WEIGHT ALLOWABLE UNDER NORTH
CAROLINA GENERAL STATUTE 20-118.

"HOLDER OF PERMIT TO BE TOTALLY RESPONSIBLE FOR CLEARING ALL OVERHEAD OBSTRUCTIONS BY USE OF RAMPS OR AUTHORIZED CITY STREETS"

Width 10 ft. Length 66 ft. Height 13 ft. 6 in.

Gross weight 103,000 lbs. Maximum axle weight 25,000 lbs.

3 or more axle group 57,000 lbs. tandem axle 50,000 lbs.

MOVEMENT TO BE AT 45 MPH ON ALL 4 LANE HIGHWAYS AND ALL 2 LANE HIGHWAYS HAVING A PAVEMENT WIDTH GREATER THAN 20 FEET AND 30 MPH ON ALL 2 LANE HIGHWAYS HAVING A PAVEMENT WIDTH OF 20 FEET OR LESS. NECESSARY PRECAUTION TO BE TAKEN TO PROTECT PUBLIC AND YOU TO BE RESPONSIBLE FOR ANY AND ALL DAMAGE. PERMIT VALID August 22 to August 31, 1983

BUT DOES NOT WAIVE ANY LICENSE TAG REQUIREMENTS. FOUR RED FLAGS TO BE DISPLAYED ON LEFT SIDE AT FRONT, WIDEST POINT AND REAR OF LOAD. SLOW TO 10 MPH BEFORE PROCEEDING UNDER ANY OVERHEAD OBSTRUCTIONS. WEIGHT RESTRICTED BRIDGES AND ROADS MUST BE OBSERVED. THIS PERMIT GRANTED UPON CONDITION THAT NO MOVEMENT WILL BE MADE WHEN VISIBILITY IS LESS THAN 500 FEET, NOR WHEN HIGHWAYS ARE COVERED WITH SNOW OR ICE AND WHEN WIND VELOCITY EXCEEDS 25 MPH IN GUSTS, OR ANY TIME TRAVEL CONDITIONS ARE CONSIDERED UNSAFE BY DIVISION OF HIGHWAYS, HIGHWAY PATROL OR OTHER LAW ENFORCEMENT OFFICERS HAVING JURISDICTION. NO MOVEMENT TO BE MADE ON SATURDAYS, SUNDAYS, HOLIDAYS OR BETWEEN HOURS OF SUNSET AND SUNRISE.

STATE FEE \$5.00 COLLECT

WILLIAM F. ROSSER
MANAGER, TECHNICAL SERVICES BRANCH