contract was

awarded to Norman McLeod, Ltd., in August, 1917. The superstructure consists of five deck latticed girders of 108-ft. span,

ft. 6 ins. centre to centre, with concrete floor beams and a concrete floor slab 20 ft. wide from curb to curb. The curbs are 12 ins. high by $10\frac{1}{2}$ ins. wide, and the concrete panel railing is 4

The substruc-

abut-

ture consists of

ments, with rein-

forced slab and counterfort wing

walls and four

concrete piers.

The floor of the

bridge is about 98 ft. above low-

water level and

ft. high.

concrete

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ferred. 'Later, a proposal to use old I.C.R. deck latticed girders that had recently been replaced by heavier structures, was submitted by Norman McLeod, Ltd., engineeringcontractors, Toronto, and was favorably considered. Plans and specifications for the structure now completed were then prepared, and the



FLOOR SLAB UNDER CONSTRUCTION

about 20 ft. below the level of Dundas street on the west side. The cut for the west approach will have a maximum depth of about 6 ft. and the approach will have a grade of 5%. This approach reaches Dundas street by a reverse curve of 253 ft. radius.

The old cut on the east side was utilized and filled to the new grade of 5%. The maximum depth of fill was 35ft. Some of the grading and the macadamizing of the ap-



MOVING FIRST GIRDER ONTO ABUTMENT

proaches will not be completed until spring, but the bridge is now open for traffic.

The total length of the structure is 542.5 ft.; or, with approaches, 1,450 ft. It was designed for Class C loading of the Ontario Department of Highways (20-ton concentrated load).

The contractor's plant included a Flory 5-ton steel cableway, about 1,000 ft. long, on wooden towers. This cableway was operated from the west bank. The mixer was a steam-driven 1-yd. Smith mixer, with overload bins fed by a clam-shell bucket, and discharging into 1-yd. hopperbottom buckets under the cableway.

The mixer and storage ground for concrete materials was immediately below the higher ground forming the approach to the original bridge. The clam-shell derrick, cement shed, tool house and office were located there. The materials



PIERS BUILT-FORMS IN PLACE FOR ABUTMENT

were teamed to that point, down the old roadway, from the Tansley station, which was about a quarter-mile away.

It was found impossible to get suitable local gravel. Crushed stone was supplied by the Canada Crushed Stone Corporation, Dundas, Ont.; sand by the Maple Sand, Gravel

& Brick Co., Toronto; cement by the National Portland Cement Co., Durham, Ont.; cross-frames, lateral bracings and pilot truss by Mc-Gregor & Mc-Intyre, Toronto; and reinforcing steel by the Trussed Concrete Steel Co., Walkerville, Ont.

The excavation was begun in 1917 at the west abutment, the excavated material being conveyed by the cableway to fill the deep cut at the east side of the ravine. No difficulty with water was encountered except at pier No. 4 (in the river) and pier No. 5 (on the east bank). A cofferdam of bags filled with earth was constructed for pier No. 4, which it was found necessary to excavate to 15 ft.



CLOSE VIEW OF FIRST PIER

below water level before hard shale was reached.

The steel railway girders were unloaded at the Tansley station. They are 108 ft. long, 9 ft. 8 ins. deep (back to The back of channels), and weigh about 20 tons each. chords consist of two 12-in. channels and 24-in. cover plates.