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Riverside Drive Extension

REPORT AND PLANS

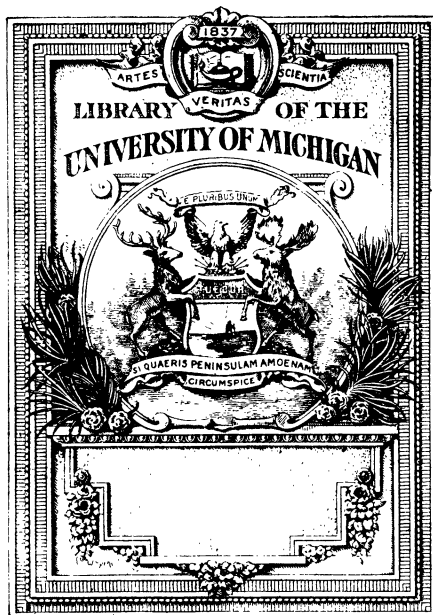
Submitted to

Hon. GEORGE McANENY

**President of the
Borough of Manhattan**

By **ARNOLD W. BRUNNER and
FREDERIC LAW OLMSTED**

June, 1913



THE GIFT OF
Borough of Manhattan

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ARNOLD W BRUNNER
ARCHITECT

RIVERSIDE DRIVE EXTENSION
STUDY FOR TREATMENT OF CONCOURSE AT NORTH END OF INWOOD HILL

FREDERICK LAW OLMSTED
LANDSCAPE ARCHITECT

Proposed Change of Map
for
Riverside Drive Extension

REPORT AND PLANS

Submitted to

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By ARNOLD W. BRUNNER and 1857-
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H. B. BROWN PRINTING & BINDING CO.
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INTRODUCTORY NOTE

By GEORGE McANENY

President of the Borough of Manhattan

The need of fixing upon a definite plan for the extension of Riverside Drive and the adoption of such a plan as a part of the city map has been long apparent. That the Drive will, in time, be extended at least to the northernmost point of Manhattan is not questioned. It seems equally certain that the City will eventually find it necessary to acquire not only the land needed for the Drive proper—in addition to the rights it now possesses in the former Lafayette Boulevard—but the lands lying between the line of the Drive and the shore front of the river. Until a proper map has been adopted, it will not be possible to fix the lines of cross streets intersecting the Drive, or to permit the owners of private property immediately contiguous to the Drive either to sell or to develop it.

When I became Borough President, on January 1, 1910, I found not only that a plan for the extension of the Drive existed, but that an appropriation of \$5,000,000 of corporate stock had been allowed to meet the expense of the work. This was to cover construction alone, and would have involved a further enormous outlay for the acquisition of land. The plan as it then stood did not seem to me to be either adequate or economical. Upon my motion, therefore, the Board of Estimate and Apportionment cancelled the plan and repealed the appropriation, allowing a comparatively small sum to reimburse contractors who had been engaged for the starting of the work.

Messrs. Arnold W. Brunner and Frederic Law Olmsted were thereupon engaged to investigate the whole problem, and to submit a new map based upon a simpler and less expensive plan. Their report is submitted herewith.

The adoption of the plan proposed, or of any of the alternative suggestions, does not commit the City to the expenditure of any moneys until its financial condition, in the opinion of the Board of Estimate and Apportionment, may warrant such an outlay. The actual physical work may be postponed as long as the Board wishes, and it need not be done all at once; the expense may be spread, if desirable, over a long period of years. The matter of immediate importance is to confirm the map and remove uncertainty about the future of private property throughout the district to be affected by the Drive development. It will be of incalculable value, both to the City and to the property owners, if some definite plan be adopted promptly. If any other course is taken, the ultimate expense to the City may be multiplied many times. The report of Messrs. Olmsted and Brunner is submitted, therefore, with the recommendation that definite action fixing the map lines shall now be taken. There is no recommendation involving the immediate outlay of funds for any purpose.



REPORT

NEW YORK, June, 1913.

Hon. GEORGE McANENY,

President, Borough of Manhattan, City Hall, N. Y. City:

SIR—In accordance with your instructions we have been engaged for some months on a study of plans for the extension of Riverside Drive to the Borough of the Bronx and beg to submit herewith a report and plans embodying our recommendations.

The plan may be divided for purposes of discussion into three sections: The Southern section from 155th street to 165th street, including the crossing of the 158th street valley. The middle section from 165th street to a point about 3,000 feet South of Dyckman street. The Northern section from the last mentioned point Northward across the Dyckman Valley and along Inwood Hill to the Borough of the Bronx.

SOUTHERN SECTION.

Throughout the Southern section there is now a practicable roadway largely used by automobiles and occupying a location nowhere less than 100 feet wide. From 155th street, at the Northern end of the viaduct over the railroad along Trinity Cemetery to 158th street this location was laid out as Riverside Drive; from 158th street North it was laid out as Boulevard Lafayette; in both cases, unlike Riverside Drive further South, it was laid out as an ordinary street through private property with building frontage on the Westerly side cutting it off from the River, and also unlike the rest of Riverside Drive it was laid out on such a crooked line as to be excessively inconvenient and somewhat dangerous. It has long been recognized that some radical improvement must be secured, and many plans have been prepared both for the City and for interested private individuals and associations. All of these plans have contemplated the shifting of the roadway far enough to the Westward to cross over 158th street by a bridge and to smooth out some or all of the abrupt turns in the alignment of the main driveway without changing the location of the present Easterly building line of Riverside Drive.

The plans have been of two classes: first, the more radical propositions, which have contemplated an extension of the viaduct now existing South of 155th street in a direct line across the valley of 158th street entirely independent of the present location; second, those which have proposed widening the high fill on which the present roadway is built so as to moderate to some extent the abruptness of the two bends between Trinity Cemetery and 156th street, and constructing a new causeway or embankment from a point near the third bend, between 156th street and 157th street, across the valley to Boulevard Lafayette, leaving an archway for 158th street to pass through.

Typical of this less radical class of plans is one offered by the Washington Heights Taxpayers' Association, dated 1906, and one prepared by George C. Wheeler, dated March 16, 1910. Also of this class is an alternative plan submitted with this report and marked "Exhibit B."

The cost of a long, high viaduct is the chief objection to any plan of the first class, since it obviously provides a very much better alignment than is possible on a more Easterly route. In considering the latter, therefore, we have sought for the most economical plan that would be reasonably satisfactory and have made careful preliminary estimates of cost for comparison with the estimated cost of the viaduct plan. Obviously, the further East the line of the proposed embankment can be crowded, that is to say, the less it departs from the present location, the less will be the cost of construction, but there are two factors that limit the extent to which it can be crowded Eastward. The first is the necessity of securing headroom under the new drive for 158th street, and the second is the importance of securing really satisfactory curves and grades for the drive.

The plan offered by the Taxpayers' Association above referred to places the new drive so far to the Eastward as barely to afford head-room over the existing surface of 158th street, thus preventing any improvement in the excessive gradient of that street (ten per cent.); and even Mr. Wheeler's plan would interfere with improving that grade as much as would be desirable. Representatives of the Taxpayers' Association in hearings before us have maintained that 158th street will always remain unimportant as a traffic street; but we are satisfied that this view is mistaken and that the Dock Department is right in contending for an approach to the water front at this point on a moderate gradient for the movement of building materials and other heavy local freight. There is no other street that can be made to give access to the water front on a reasonable grade for a distance of a mile and an eighth to the South or two miles and a half to the North. In our opinion, therefore, it is important to keep any new high level drive further to the Westward than in either of the plans referred to, in order to preserve the opportunity for an approach to the river on a gradient not exceeding five per cent.

As to the curvature of the drive, we believe it would be extravagantly wasteful to spend several hundred thousand dollars for improving the present alignment and grade and still leave the drive open to serious criticism in these respects. Since the present drive, between 155th street and 157th street, is carried on a retaining wall that varies from 55 to 27 feet in height, the slightest shifting of the line to the Westward will involve a very large cost either for a new retaining wall or for a huge sloping embankment to be covered with soil and converted into a park. The increased cost of construction incident to throwing the new line somewhat further West than is shown on the plans submitted to us is relatively small in comparison with the gain in the quality of the alignment. We believe that no sharper curve should be approved than the worst which is to be found elsewhere on the drive between this point and 72d street. A better curve than this would be desirable. A

worse one would not be sufficient improvement to justify the great cost involved in any change. Adopting this standard of worst permissible curvature for the new line we arrived at the plan marked "Exhibit B," which would, in our opinion, involve the lowest construction cost compatible with reasonably satisfactory results.

For comparison with this we submit, in our general plan, marked "Exhibit A," what we believe to be the best plan regardless of cost. This involves a viaduct construction for 1200 feet Northerly from 155th street and beyond that point a new drive entirely West of the present Boulevard Lafayette and considerably below it to a junction point near 165th street. The plan also provides for improving the bad curves and grades in Boulevard Lafayette between 160th street and 164th street, which ought to be ameliorated in any case.

It would be possible, by deflecting the line of the proposed viaduct a little more to the Eastward, to connect with the present existing Boulevard Lafayette just North of 160th street, but this would require an objectionable gradient on the viaduct and would be distinctly inferior to the plan as drawn both in alignment and in grade.

For the purpose of comparing plans A and B South of 165th street, we have prepared preliminary estimates of the cost of construction under both, based on unit prices determined in consultation with Mr. E. P. Goodrich, Consulting Engineer of the Borough of Manhattan. These estimates do not purport to be exact as to total cost but they furnish a fair basis for judging the relative costs of the two plans. The estimated cost of construction for the viaduct plan ("Exhibit A"), including the necessary changes in Boulevard Lafayette as shown, but exclusive of any planting or other improvement of the park slopes adjacent thereto, is \$1,013,000. The estimated cost of construction for the alternative plan ("Exhibit B") done in the most economical manner with sloping earth banks in place of retaining walls but including the necessary improvements in Boulevard Lafayette between 161st street and 163d street corresponding with those included in the estimate for "Exhibit A," is \$485,000.

The land damages are, however, of as much importance as the construction cost. At hearings before us some have advocated the acquirement for park purposes of all the land in the 158th street valley, from the railroad to Boulevard Lafayette and to the present drive North of 155th street. Taking the South line of 161st street as the Northern limit of this valley, the assessed valuation of the property amounts to \$241,500; but we are assured that the damages for its acquisition would be very greatly in excess of that figure. The chief argument for such a large and costly park acquirement is that the valley has a great deal of natural beauty, including a grove of unusually large trees associated with the memory of Audubon. If it were to be acquired and the viaduct plan for the drive were then carried out ("Exhibit A"), the viaduct would to a certain extent impair the value of the property for park purposes by interfering with the open views toward the river. It is true that the structure would be so high and open that the park would still be enjoy-

able, as in many a wooded valley spanned by a great viaduct; but, upon the whole, we do not believe that the area East of the viaduct would be worth enough as a local park to justify its cost to the City. But there would be even less justification for its acquirement if the alternative plan ("Exhibit B") were to be carried out. In that case the trees which now make the valley attractive would be buried under a mountain of filling; the area on the Easterly side of the drive would be a deep shut-in pocket which could be made available for park purposes only by filling at large additional expense; and the space between the drive and the railroad would be almost wholly occupied by a newly-filled sloping bank, so steep as to be of very little value as a local park. If the City could afford to pay largely in excess of a million dollars to acquire this whole valley for park purposes, it would be folly to convert it into a dump for the sake of saving half a million dollars in construction cost by omitting the viaduct.

If, when the drive was originally laid out, all the land between it and the railroad had been acquired for park purposes, as was done South of Trinity Cemetery, we should recommend its retention as a pleasant wooded valley park, and we should recommend a viaduct spanning it rather than a fill obliterating it; but we cannot bring ourselves to believe that its acquirement for park purposes, at present values, would be worth, either to the City at large or to the assessable abutters further East or to both combined, as much as it would certainly cost.

There is no doubt, however, that the outlook over the river from the improved line of drive should be unobstructed by private buildings to the West of it. The assessed valuations of the properties between the East line of the alternative plan ("Exhibit B") and the railroad from 155th street to the South line of 161st street amount to about \$566,500; whereas the assessed valuations of the properties included between the East line of the viaduct plan ("Exhibit A") and the railroad, within the same limits, amount to only about \$243,950. The difference between these figures, \$322,550 in favor of the viaduct plan, would be very largely increased by condemnation. This difference would be further modified by the amount of grade damages due in each case on account of the abutting land to the East. In case of the embankment plan ("Exhibit B"), in addition to the damages for putting the abutting land very much below the street level, it would be necessary either to acquire rights to slope or to build a retaining wall on the street line. The latter would probably be less expensive and is the usual practice of the City in such cases. Its estimated cost is \$64,310. The grade damages which would result from the viaduct would, at first sight, appear to be greater than those from the alternative plan, because it would be higher above the natural surface. We have, however, consulted with a representative of the owners of a large part of the land involved, and while he has made no definite proposition, he has stated explicitly their intention and desire to utilize the property below the level of Riverside Drive for warehouse purposes (with access on lower levels from 158th street and the railroad), and on top of these warehouses to erect apartment houses with access from the Drive. If the property is to be so developed,

the viaduct, in spite of its height above the existing surface, would be a decided benefit, provided the space beneath it were left available for connection with the railroad and for other warehouse purposes. Without a careful detailed appraisal by real estate experts of the probable damages to property in each case, it is impossible to set down in definite figures the comparative cost of the two schemes, but we believe that the probable saving in cost of construction, if the alternative plan " B " were adopted would be offset and probably exceeded by the greater property damages incidental to that plan. In view of all the facts accessible to us, it appears that there will be little difference in total cost between the two plans; that the viaduct plan would interfere less than the alternative plan with the development of taxable improvements; and finally, that the viaduct plan would be decidedly superior as a physical solution of the problem. We therefore submit as our conclusion that the City should adopt the viaduct plan substantially as shown on our general plan (" Exhibit A ") and should proceed at the earliest practicable date to acquire the necessary land and rights for the execution of the plan.

While the question above discussed at length is the most perplexing and controversial one involved in the Southern section, certain other features of this part of the plan should be mentioned.

Owing to the extremely steep slope of the hillside at most points North of 158th street, it was almost inevitable that a street 100 feet wide like Boulevard Lafayette should leave the abutting property on the East excessively elevated above the established street grade, and in order to meet this difficulty and give proper access to the property a one-sided service street has since been laid out at a higher level and immediately contiguous to the Easterly line of Boulevard Lafayette. In some places this service street is sustained by a retaining wall on the original East line of the Boulevard, but in general is supported on a bank occupying the Easterly part of Boulevard Lafayette, only the Western half of that street having been regularly graded and opened to travel. The service street is only 40 feet wide and is provided with a sidewalk only upon the Easterly side next the private property. The plunging view from the Westerly side is so fine that there will always be a strong temptation for people to walk along that side of the street. We therefore believe it to be very desirable in the interests of safety, as well as for the sake of securing a valuable local promenade, to provide a sidewalk with trees upon it along the Westerly side of the service street, and on a level with it. On the other hand, there is no occasion for a sidewalk on the East side of the main or lower roadway and on a level with it. The general effect will be much more agreeable if a park-like planted bank is maintained along this side of the road. We recommend therefore that the space between the Easterly curb of the main roadway and Westerly curb of the service street roadway be utilized as follows: first, for a promenade or sidewalk at the level of the service street, supported by a retaining wall where necessary to overcome the difference in grade; and second, for a park-like planted bank rising from the Easterly curb of the main road toward this promenade.

Since there will be no abutting properties and no occasion for vehicles

to stand along the Easterly side of the main road of Boulevard Lafayette in this section, and since the majority of the through travel will take the drive still further West which forms the direct continuation of the viaduct and the old portion of Riverside Drive, we believe that a clear width between curbs of 40 feet will be sufficient and we have so shown it on the plan. The general scheme would remain the same if the Easterly curb were to be thrown further over to give additional width, but a definite plan should be adopted and the final grading done at the start in order to permit the establishment of permanent planting.

The roadway in direct extension of the older Riverside Drive is shown 60 feet wide corresponding to the dimensions adopted further South.

MIDDLE SECTION.

Throughout the middle section, from 165th street Northward to the point where the design is affected by the approach to the viaduct across the Dyckman street valley, the plan for the roadway now proposed is only a modification in detail of the plan under which Boulevard Lafayette was laid out. We accept the single 60-foot roadway of that plan because we believe it to be ample for handling the traffic and because to make the roadway wider, or to change it into a double roadway, as at some points in the old portion of Riverside Drive, would increase both the cost of construction and the damage to the natural scenery without offsetting advantages.

So far as concerns the traffic capacity of the roadway, we regard a width of 60 feet as extremely liberal, since there will be no occasion for vehicles to stand at the side of the road to get access to abutting property except at a few points upon one side only.

The same reasons that led us to accept the 60-foot roadway width of the old plan led us also to accept a 20-foot sidewalk or promenade continuously following the Westerly curb of the roadway where it will command the best views. Only at Inspiration Point, where the topographical conditions and the nature of the impressive views demand a different treatment, does the main walk separate either in plan or in elevation from the roadway.

For the same reasons no provision has been made at the same level as the main roadway for a walk along its Easterly side, away from the view, or for a bridle path. In the park areas proposed for acquirement all along the Western side of the Drive, and in places along the Eastern side it will be practicable to arrange for irregular walks and for bridle paths, and to do so at far less cost both in money and in destruction of natural scenery than would be possible in direct connection with the main drive.

Although adopting in general the old Boulevard Lafayette plan as to the 60-foot roadway and the 20-foot sidewalk West of it, we propose to improve the details of the alignment throughout and the grades at certain points.

Wherever the roadway as now graded is carried on a higher retaining wall, as a large proportion of it is, the base of the wall is supposed to have been constructed on the West line of the old location and the top of the wall



FREDERICK LAW OLMSTED
LANDSCAPE ARCHITECT

RIVERSIDE DRIVE EXTENSION
STUDY FOR TREATMENT AT INSPIRATION POINT

ARNOLD W BRUNNER
ARCHITECT

is often many feet to the East of that line, because of the heavy and irregular batter. In such cases, in the interest of economy, we have, wherever practicable without sacrificing excellence of alignment, shifted the center line of the roadway enough to the Eastward to permit the construction of the full 20-foot walk West of it without requiring the immediate reconstruction of the existing retaining walls. The heavy line shown upon the plan represents the West side of the 20-foot walk, and if it is considered necessary to lay out a new street line for the West side of Riverside Drive, separating it from the park lands on the West and including all construction necessary to the completion of the street improvement, that line should be defined sufficiently far to the West of the heavy line upon the plan to include the space required for the batter of the retaining walls both existing and proposed. Since that line would be an arbitrary one, merely dividing two pieces of City property, it is not important to make it follow exactly the base of the wall, and it can most conveniently be drawn parallel with the walk line and uniformly about twenty feet distant from it.

As in the Southern and Northern sections, we recommend as an absolute essential the control of the slopes lying to the West of the Drive. The necessity of holding those slopes for park purposes and for the preservation of the open view across the river is so obvious as to need no argument or explanation. Without a permanently protected view to the West the drive would not be Riverside Drive at all; it would be merely one of the longitudinal avenues of Manhattan. The river views make it one of the most notable avenues of the world.

In this section, however, we recommend also certain acquirements to the East of the Drive. From 165th street to 177th street the ground rises very abruptly from the roadway to a sort of plateau, very far above it and almost totally inaccessible except from the Eastward on the higher level. These abrupt slopes are covered with some of the largest and most impressive woods to be found along the whole of Riverside Drive. For the greater part of the distance the rocky wooded hills of Fort Washington Park rise on the West above the level of the drive, which here runs through an inland pass quite out of sight of the river, so that the eye is not drawn to the Westward, as it is everywhere else, but rests with equal interest upon both sides of the road. This sylvan passage affords a very charming variation in the scenery of the Drive, and its permanent retention would be of great value. In such a situation to substitute a wall of apartment houses for the woods on the East side of the road would not merely impair the scenery but totally change its character. To make this land on the East reasonably available for buildings fronting toward Riverside Drive would require the construction of a separate service road carried on a very high retaining wall, and the distance to the next existing street is such that the intervening block for more than half its length would be either too deep or too shallow for economical development.

The line of proposed park acquirement on the general plan excludes all the land which seems reasonably well adapted for building purposes and not essential for the control of the scenery. In doing so it leaves one row of lots

backing on the park. As a general rule this is an objectionable practice; and except for reasons of economy it would probably be better to acquire the row of lots also; but the case is a peculiar one on account of the extraordinary difference in level between the street on which these lots face and the road and path from which the scenery of the park is mainly to be enjoyed, but we believe the advantage of acquiring these lots would not be worth the cost.

The service street for house frontage which now borders the main roadway on the East from 177th to 181st streets we propose to carry a little farther North, in connection with a change in the grade of 181st street itself, in order to get a connection with the drive at a reasonably good gradient. This follows substantially a plan proposed by Mr. Wheeler on behalf of the land owners. The same remarks that were made in regard to walk on the West side of the service street in the Southern section apply here also.

We suggest that the location hitherto proposed for Chittenden avenue be shifted half its own width to the West in order to give a better depth of block between this street and Northern avenue, and reduce land damages, and that the steep wooded bank between Chittenden avenue and the present East line of Boulevard Lafayette be acquired for park purposes.

We show the proposed Chittenden place as heretofore indicated by the Topographical Bureau, descending to the Drive from Northern avenue, but we seriously question the wisdom of constructing this connection as a street, or of constructing it at all at any time in the near future. We recommend that the narrow steep bank on which it would be laid out be acquired in any case for park purposes. If it is so acquired, and if the public convenience shall demand an additional street between Northern avenue and Riverside Drive at this point, it can at any time be built as a park road. In the meantime a relatively costly piece of construction can be postponed. A more important connection is the one which is shown descending along the hillside from the corner of Fort Washington avenue and Corbin place. Whether Chittenden place is built or not a flight of steps should be constructed above to give access to what is known locally as Inspiration Point. The Drive here rises over a ridge in such a way as to command an exceptionally impressive view. We therefore propose a widening of the drive to give good opportunity for vehicles to turn and to stand without obstructing through travel, together with a special arrangement of the promenade on the West and an elevated shelter building in connection with the steps on the East. One of the sketches attached to this report shows clearly the general character of the treatment proposed for this important locality.

NORTHERN SECTION.

The chief problem in the Northern Section has been the determination of the elevation of the necessary viaduct across the Dyckman Street Valley and of the approach to the proposed Henry Hudson Memorial Bridge connecting Inwood Hill with the Bronx.

Plans previously adopted by the City were based upon an elevation of

217 feet above tide level for the Hudson Memorial Bridge, which is almost as high as the highest summit of Inwood Hill and higher than any other land for a long distance to the South or to the North, and they showed a location for the main roadway extending directly South from the Bridge along the central crest of Inwood Hill, which practically necessitated a viaduct at a great height, about 160 feet, across the Dyckman Street Valley.

Aside from the question of the cost of the bridge and the viaduct this plan was opposed before us by representatives of numerous property owners on the general ground that by keeping the main highway at such an elevation it would put nearly all the property in the vicinity at a great disadvantage, and on the specific ground that its effect in detail upon the street plan for the whole adjacent region would result in relatively high costs for construction and relatively low values. Representatives of the interested property owners discussed these questions with us in detail, both at public hearings and at informal conferences, and we concluded that their objections were in general well founded.

The design of an improvement of such great general importance should not, however, be controlled primarily by consideration for local real estate interests, and we therefore made a careful independent study of the problem from the point of view of the City as a whole, with particular regard for aesthetic considerations. With the greatest respect for the judgment of the able designers who had preceded us in the consideration of the scheme we found ourselves finally forced to the opinion that it would be a serious artistic mistake to make the height of the Hudson Memorial Bridge so great that its approaches would pass right over the tops of the biggest hills on each side of the valley which it spans. We believe it will produce a more dignified and impressive effect as a whole if the bridge is fixed at a level which will permit the masses of the hills to count as dominant features in the landscape, against which the two ends of the bridge may firmly abut, and which must be recognized by the deflection of the traffic lines around them. We were not commissioned to prepare new designs for the proposed bridge nor have we undertaken to do so on our own account, but we have studied the problem sufficiently to feel confident that a bridge can be designed in accordance with our conclusions as stated above so as to produce a better general effect at a considerable saving in construction cost, while at the same time leaving the lands on Inwood Hill in better condition for almost any kind of development.

Another serious objection on aesthetic grounds to the former plan of locating of the main drive along the central crest of Inwood Hill is that it would either be cut off from the river view by buildings to the West or would involve the acquirement for park purposes of a very large area of valuable building land.

By carrying the main drive around the West side of the Hill instead of over the top of it we are enabled to reduce the elevation of the viaduct over Dyckman street to 100 feet instead of 160 feet. On the steeper side-slopes elevated service streets for house frontage are introduced similar to those in the Southern and Middle Sections.

The park takings include, as elsewhere, everything between the Drive and the railroad, except in the vicinity of Dyckman street where it is proposed to leave the lower level for commercial development, subject to easements preventing the erection of structures that would interfere with the view from the viaduct. It is urgently recommended that the Northern tip of the ridge of Inwood Hill, forming the vista point of the proposed bridge and one of the most conspicuous points on the Island of Manhattan, be acquired and held as a possible site for some great public building. The steep wooded slopes below this point should be acquired for park purposes at least as far around to the East as the plan indicates. It would be very desirable to connect these park slopes with the strip which extends down to the water from Isham Park, and to widen the latter by an additional acquirement on the South side so as to keep open the view of the whole end of Inwood Hill. These propositions are clearly not a part of Riverside Drive extension and accordingly are not covered by our plans.

The precise elevation to be adopted for the bridge concourse, can only be determined after a careful re-study of the design for the bridge. We are satisfied that the elevation should not be higher than that indicated on the plan, 181 feet for the bridge concourse. If the land takings are made in accordance with the plan it will be possible to construct the drive and concourse at a still lower elevation within those limits in case that should be found desirable after carefully revising the designs for the bridge and its Northern approaches.

On the plan marked "Exhibit C" we show a possible road and walk connecting from a point on the main drive shortly North of the Dyckman Street Valley with a possible road and walk on top of the new location of the railroad and thence Northward across the Harlem River ship canal by a double deck drawbridge carrying both the railroad and the roadway.

The present plan of the railroad contemplates either cut and cover or tunnel construction along the whole of the new right of way from Dyckman street Northward almost to the bridge, and the extra cost of a roadway and walk along the top of the railroad would be comparatively small. It is obvious that the extra cost of providing for the upper deck over the railroad bridge, and for the roadway approaches to it on the North, although considerable, would be a very small fraction of the cost of the proposed high level monumental bridge. The great cost of the latter will probably postpone the completion of the improvement for many years, and it is seriously to be considered whether the advantages of a comparatively early opening of a continuous drive along the river into the Borough of the Bronx would not justify such a combination with the railroad. Considered as an absolute alternative involving the permanent abandonment of the high level plan, we cannot recommend it as the best solution of the problem, but regarded as the first step in a plan providing for the construction of the high level bridge at some time in the remote future, and for the acquisition of the necessary rights for the same at the present time, it presents many advantages. If the upper or driveway deck of the drawbridge and its approaches were provided

by the railroad under an arrangement by which the City would contribute to the cost of the structure, it would be possible, at a remarkably small cost for construction, to open a practicable driveway along the river to the Bronx and to Yonkers as soon as the railroad completes the improvements now contemplated. The existing roadway of Boulevard Lafayette where it bends away from the River South of Dyckman street will in any case be connected on a good grade with Dyckman street, and by Dyckman street with a bridge on which the latter will cross over the railroad to the water front. Thus it would be unnecessary to await the construction of the viaduct over Dyckman street and the descending connection shown on "Exhibit C," or in fact any of the other improvements in construction proposed anywhere along the whole route of Riverside Drive in the Borough of Manhattan, before opening a practicable and useful thoroughfare along the river all the way to Yonkers.

If this suggestion is adopted and a driveway is provided as shown on "Exhibit C," crossing the Dyckman street valley on a viaduct at elevation 100 and thence descending to the railroad bridge it would nevertheless be desirable to provide for a continuation of the high level drive to the Northern end of Inwood Hill on the same lines as the proposed approach to the Hudson Memorial Bridge, ending in a terrace or concourse, crowning the wooded slopes which terminate Manhattan Island, and commanding wonderful views up and across the Hudson and over the low lying parts of the City toward Long Island Sound. This drive and terrace would be splendid in themselves and would form the starting point of the great high level bridge whenever in the future that bridge may be found practicable.

GENERAL CONCLUSIONS.

In view of the entire foregoing discussion we recommend that the City proceed in the following order:

1. To acquire the additional lands and rights in land indicated on the general plan, "Exhibit A," and discussed in detail in the above report, preferably beginning at 155th street and working North. These takings should include all land and rights in land West of the drive with the following exceptions: the railroad right of way; certain properties near 158th street and near Dyckman street left for commercial use but subject to restrictions against the erection of buildings high enough to obstruct the view from the drive; and such easements for wharves as the City may find necessary.

2. To negotiate with the New York Central Railroad in regard to the design and cost of a street over the proposed new railroad location Northward from Dyckman street substantially as indicated on the plan marked "Exhibit C."

3. To prepare plans, which lay beyond the scope of our instructions, for the continuation of Riverside Drive and Park through the Borough of the Bronx to the Yonkers line; and, at the same time, preferably in co-operation with the City of Yonkers and the State Highway Commission or some special Commission to be created for the purpose by the Legislature, to lay out a plan

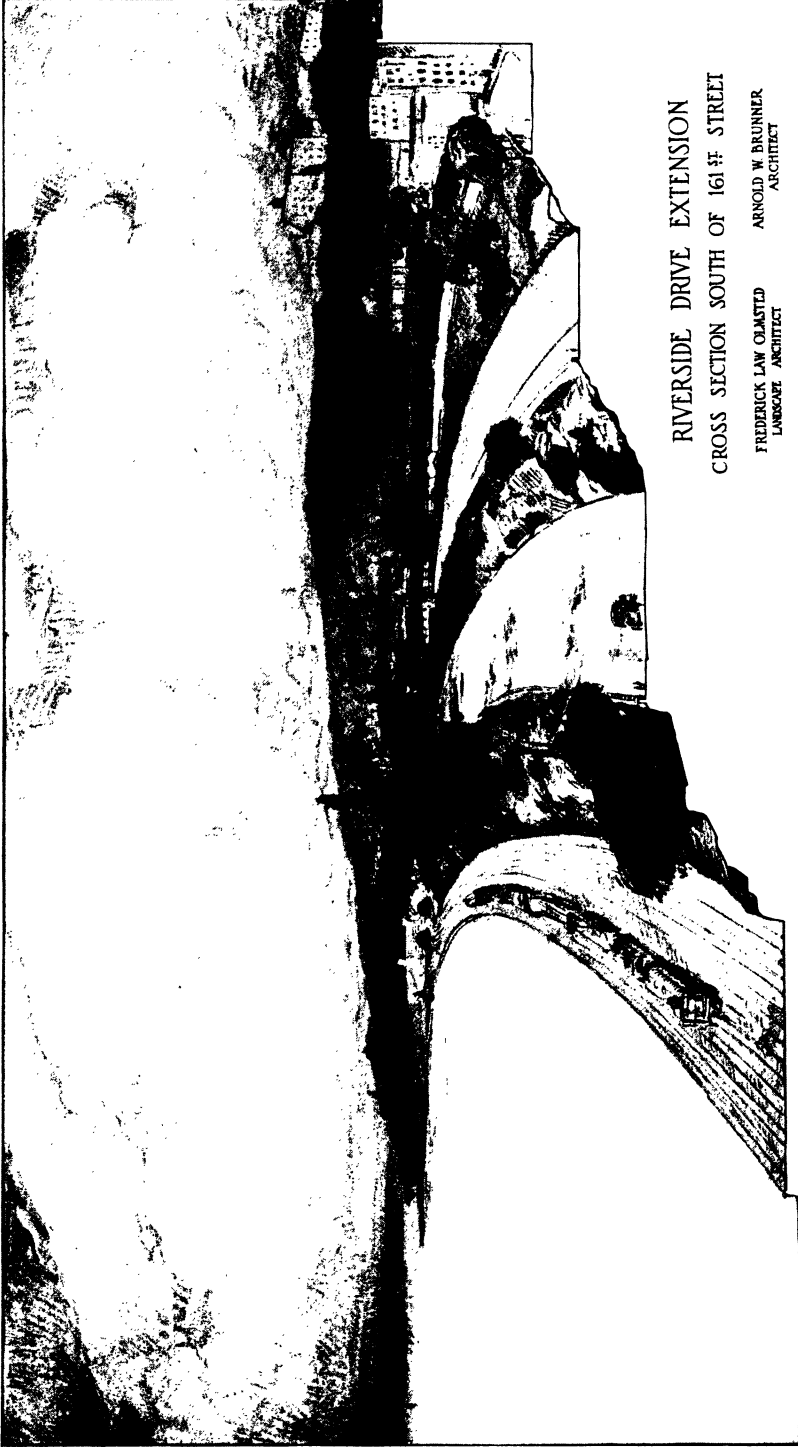
for an adequate thoroughfare on the East side of the Hudson River in continuation of Riverside Drive to the Northern part of the State.

4. To construct the improvements shown on the general plan, "Exhibit A," as supplemented by "Exhibit C," section by section as the finances of the City and local conditions at various points along the line may permit.

Respectfully submitted,

(signed)

FREDERICK LAW OLMSTED
ARNOLD W. BRUNNER.

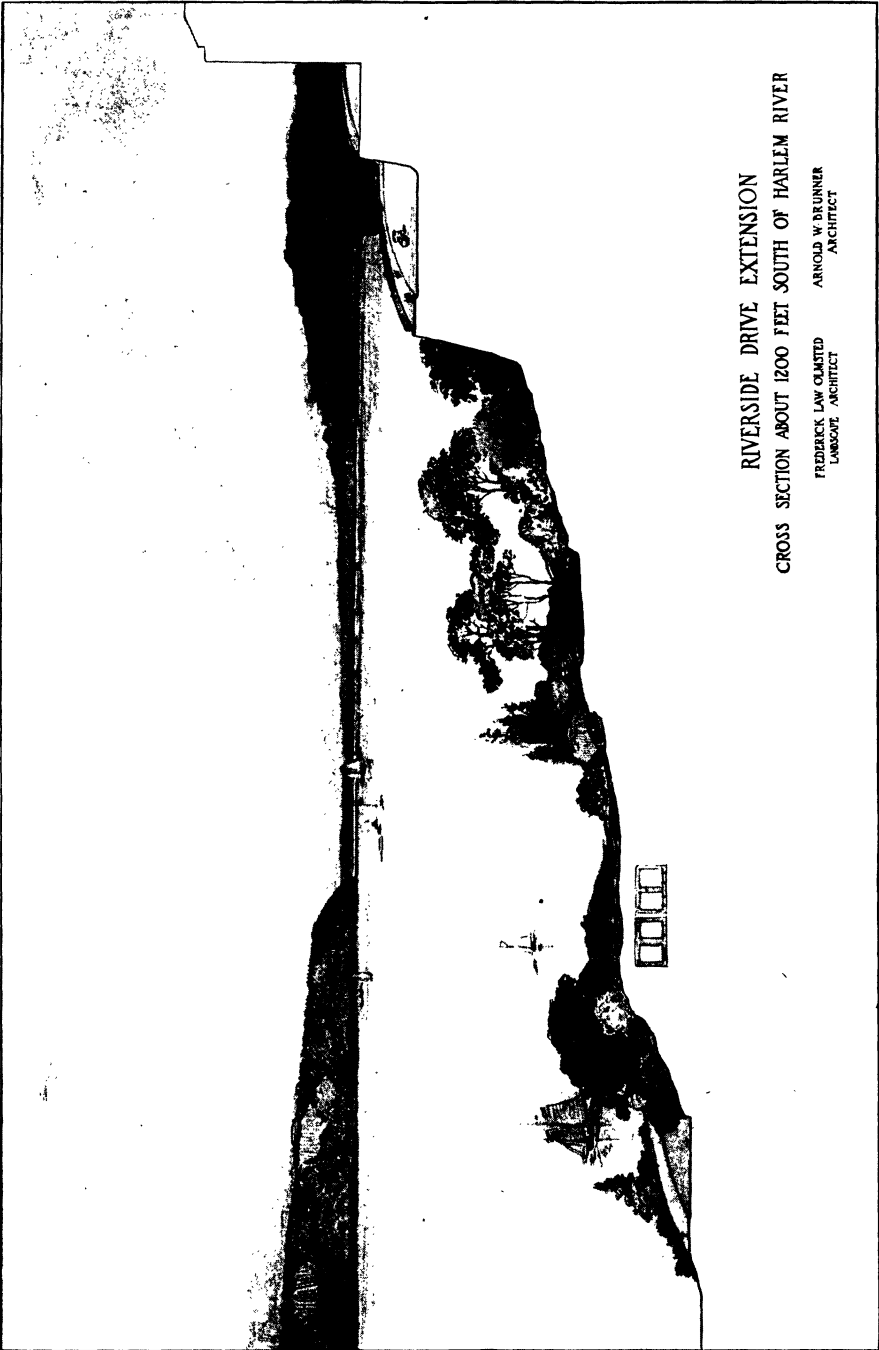


RIVERSIDE DRIVE EXTENSION
CROSS SECTION SOUTH OF 161ST STREET

FREDERICK LAW OLMSTED
LANDSCAPE ARCHITECT

ARNOLD W. BRUNNER
ARCHITECT

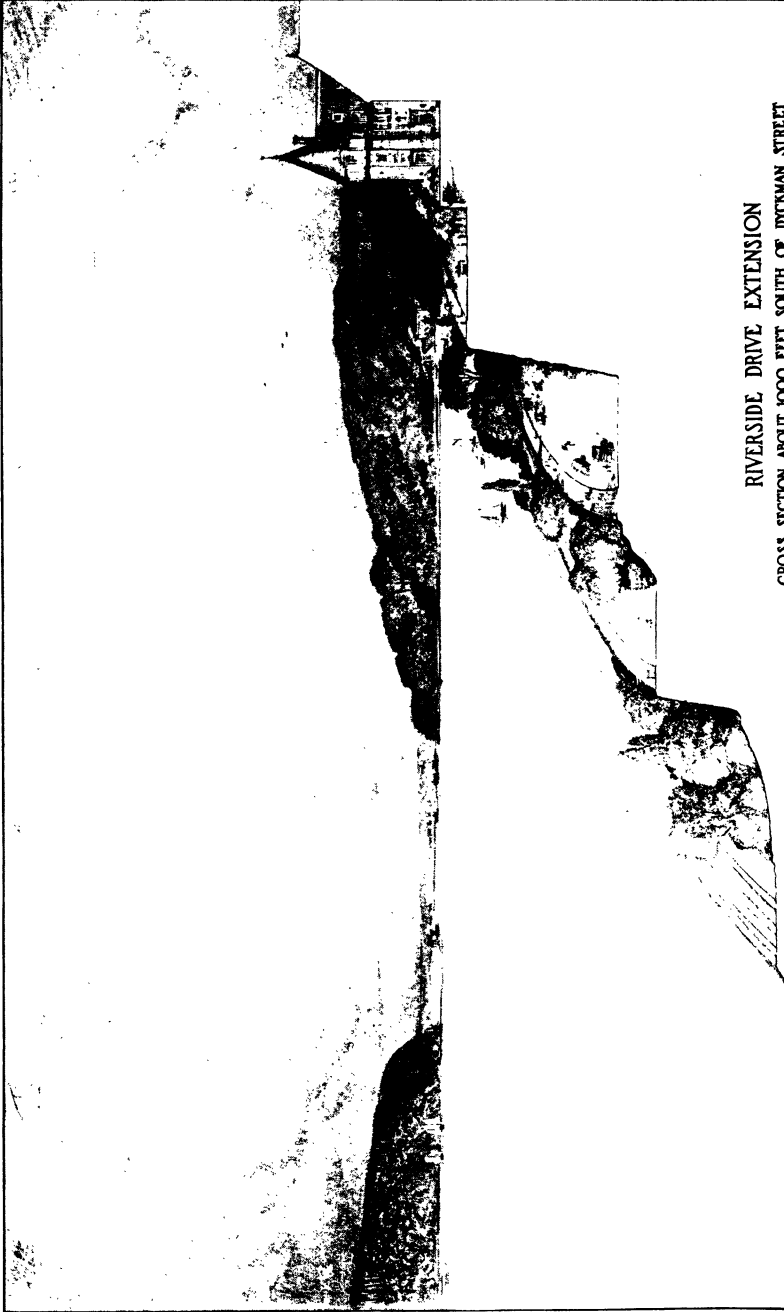




RIVERSIDE DRIVE EXTENSION
CROSS SECTION ABOUT 1200 FEET SOUTH OF HARLEM RIVER

FREDERICK LAW OLMSTEAD
LANDSCAPE ARCHITECT

ARNOLD W. BRUNNER
ARCHITECT

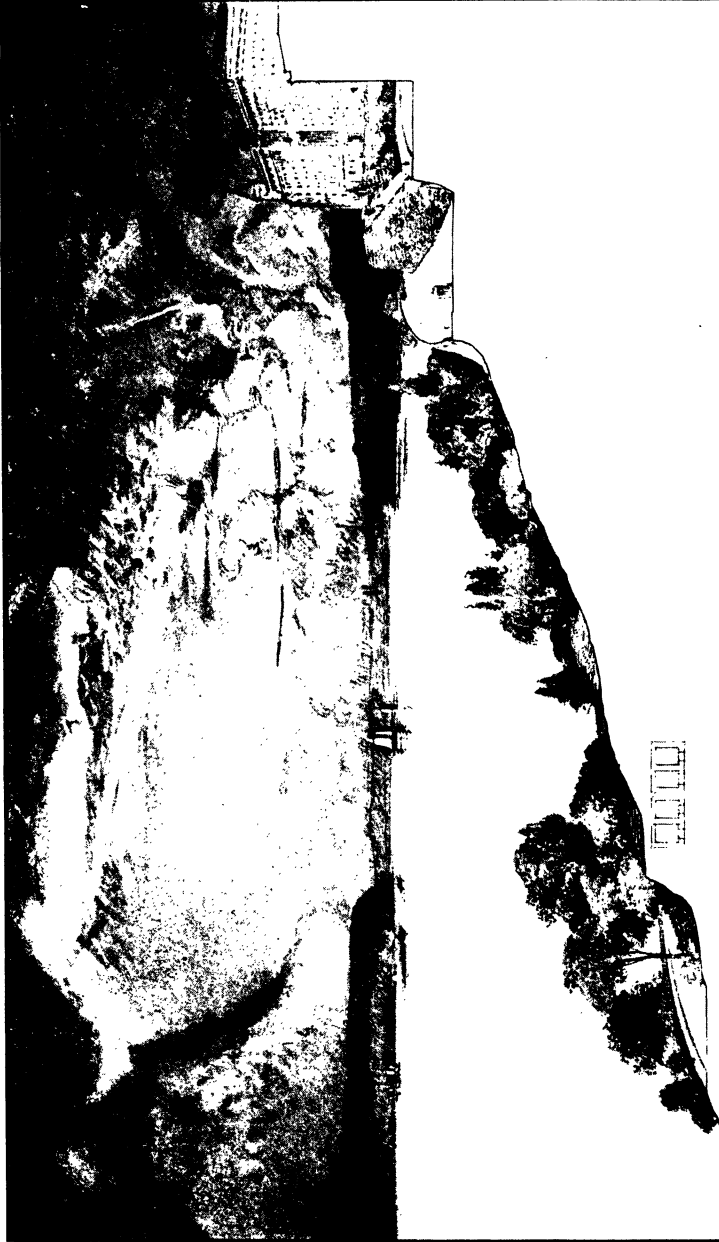


RIVERSIDE DRIVE EXTENSION
CROSS SECTION ABOUT 1000 FEET SOUTH OF DYCKMAN STREET

FREDERICK LAY OLMSTEAD
LANDSCAPE ARCHITECT

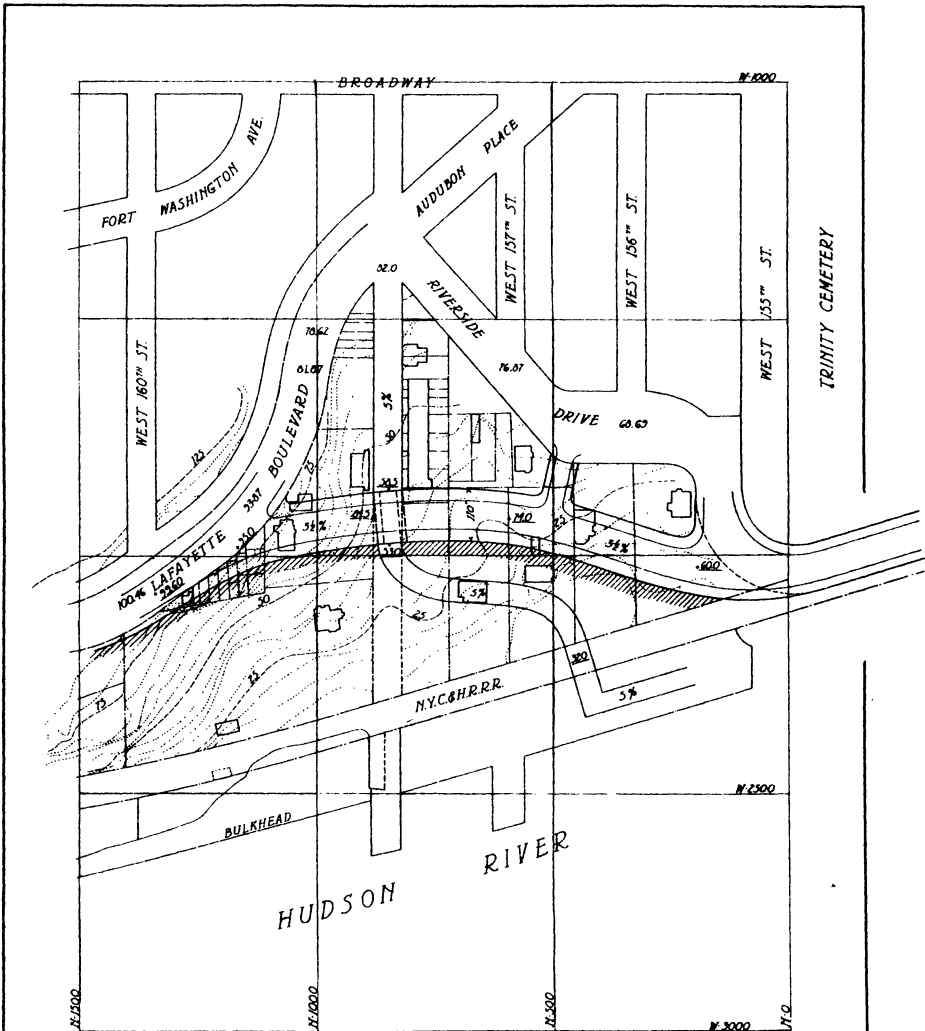
ARNOLD W. BRUNNER
ARCHITECT






RIVERSIDE DRIVE EXTENSION
CROSS SECTION ABOUT 2500 FEET SOUTH OF HARLEM RIVER
FREDERICK LAW OLMSTED LANDSCAPE ARCHITECT
ARNOLD W BRUNNER ARCHITECT

Oversized Foldout



CITY OF NEW YORK - BOROUGH OF MANHATTAN
RIVERSIDE DRIVE EXTENSION
 ALTERNATIVE PLAN TO ACCOMPANY REPORT OF
 ARNOLD W. BRUNNER AND FREDERICK LAW OLDMSTED
 DATED MAY 1913

NOTE
 PARK AREAS SHOWN THUS 
 PROPOSED GRADES SHOWN UNDERLINED

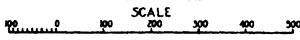
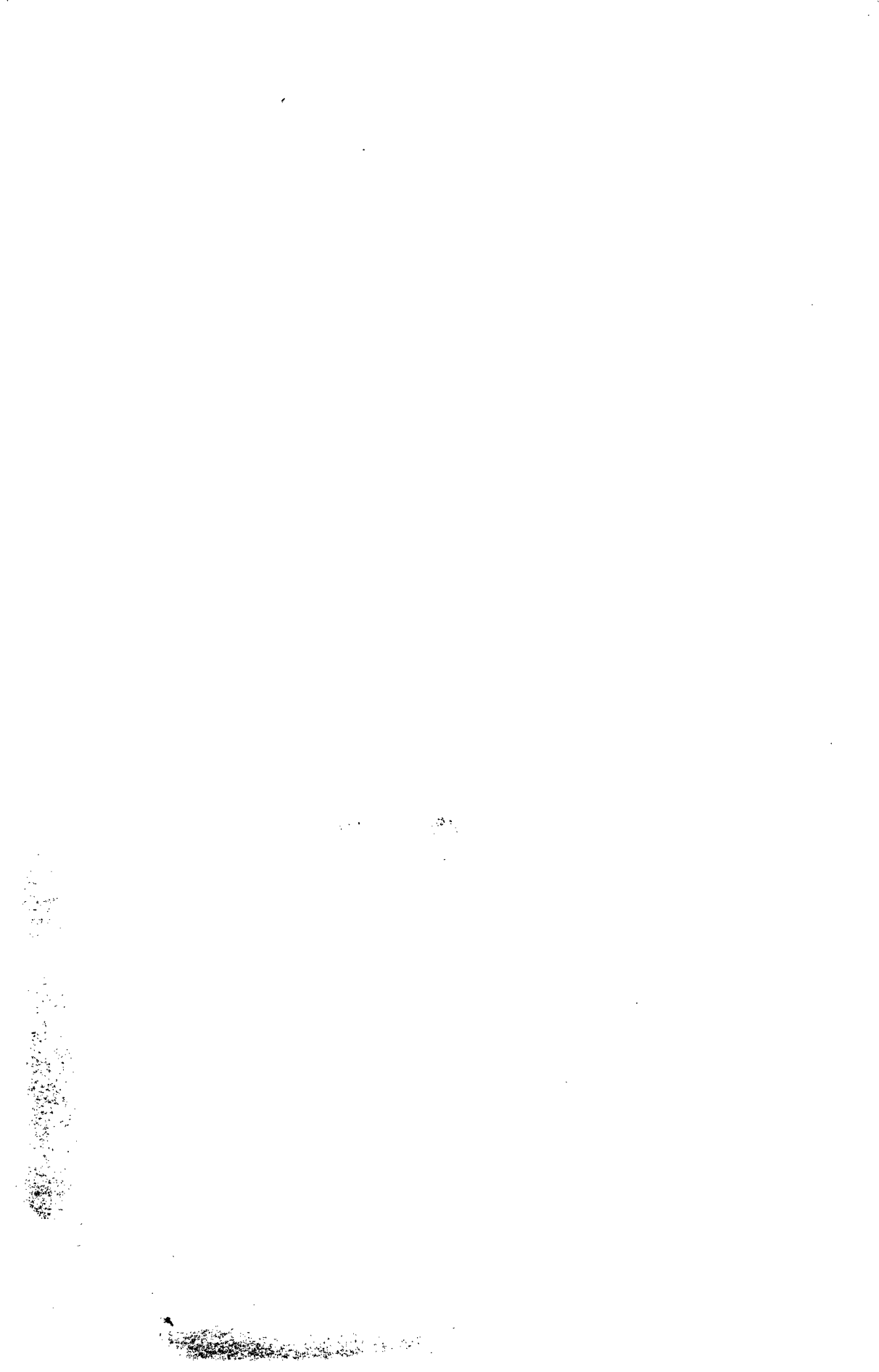


EXHIBIT B

Oversized Foldout





FOUND IN LIBRARY

MAY 3 1915

UNIVERSITY OF MICHIGAN



3 9015 04888 7973

NA
9127
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B8

Brunner

Proposed change of
map for Riverside
drive extension.

282631

H. W. Lathrop
1531 Arch Bldg

MAY 10 1915

APR 27 2000

