Appendix A: Project Planning and Development

A-1 White Paper on Transit and the Tappan Zee Hudson River Crossing Project

White Paper on

Transit and the Tappan Zee Hudson River Crossing Project

Purpose of White Paper

The current Tappan Zee Hudson River Crossing Project is being advanced to address the needs of the Tappan Zee Bridge. This Project has a different scope and termini than a previous project that included transportation improvements to a 30-mile corridor from Suffern NY to Port Chester NY. The previous Tappan Zee/I-287 Corridor Study components included Highway, Bridge and Transit improvements while the current project addresses the Tappan Zee Hudson River Crossing and ensuring that the crossing addresses structural and operational deficiencies of the present bridge while maximizing the public investment. The previous corridor project has been rescinded and the State Sponsors do not intend on advancing it in the foreseeable future. This paper documents the reasons for rescinding the previous Tappan Zee/I-287 Corridor Study and advancing the current Tappan Zee Hudson River Crossing Project.

Project History

The Tappan Zee Bridge opened to traffic in 1955 as part of the New York State Thruway extension between Suffern, New York and Yonkers, New York. Over the years, the bridge and its highway connections have been the subject of numerous studies and subsequent transportation improvements. Despite these improvements, congestion has grown steadily over the years and the aging bridge structure has reached the point where major reconstruction and extensive measures are needed to sustain this vital link in the transportation system.

In April 2000, a Long Term Needs Assessment and Alternatives Analysis was completed by the New York State Governor's I-287 Task Force. The report concluded that while there was no single preferred solution for addressing the transportation needs in the Tappan Zee Bridge/I-287 Corridor, both a short-term aggressive Transportation Demand Management (TDM) program and longer-term capital improvements were needed. The long-term alternatives evaluated by the Task Force called for replacement of the existing Tappan Zee Bridge because it was concluded that rehabilitation of the existing bridge to current standards would be highly disruptive, and as costly, and not nearly as beneficial in mobility enhancement or meaningful congestion relief as a replacement bridge.

Since 2000, the NYSTA has implemented TDM measures on the Tappan Zee Bridge including a commuter carpool incentive programs for vehicles with 3 or more passenger and E-ZPass at a reduced toll rate of $0.50 as compared to $5.00 for cash tolls. The Thruway Authority also has an incentive toll rate program for commercial vehicles with E-ZPass during the off-peak period

at both Spring Valley Toll and Tappan Zee Bridge Toll barriers. There are also car pool/vanpool programs sponsored by NYSDOT to encourage the use of those programs. The Thruway Authority has worked with Rockland County and NYSDOT to expand the use of the park and ride lots along the TZB/I-287 corridor and at Exit 14 in Spring Valley and at Exit 18 in New Paltz. These TDM measures have helped to improve mobility along the TZB/I-287 corridor.

In November 2000, the New York State Thruway Authority (NYSTA) and the Metropolitan Transportation Authority Metro-North Commuter Railroad (MNR) announced that an EIS would be undertaken to identify and evaluate alternatives to address the mobility needs of the I-287 Corridor, as well as the structural and safety needs of the Tappan Zee Bridge. The alternatives contained in the I-287 Task Force report, as well as those suggested by elected officials, transportation and environmental groups, community groups, and the public, were considered and an approach to evaluating and advancing alternatives was established. On December 23, 2002, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) published a Notice of Intent (NOI) to prepare an Alternatives Analysis (AA) and EIS for the Tappan Zee Bridge/I-287 Corridor Project in the Federal Register.

Over the next few years, project development continued with increasing involvement by the New York State Department of Transportation (NYSDOT). Alternatives for transit modes along the corridor were identified, as were a set of highway and bridge improvements. Also, in 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was enacted, which incorporated changes in the metropolitan planning and environmental review processes for transportation projects. FHWA and FTA determined that a revised NOI should be published to update the public and interested agencies on the alternatives development, to identify NYSDOT as the Project Director, and to incorporate the provisions of SAFETEA-LU. The revised NOI was published on February 14, 2008.

Four alternatives were to be considered in the EIS for the Tappan Zee Bridge/I-287 Corridor Project. These alternatives would have included the following elements:

- ***Bridge:*** The four alternatives included replacement of the Tappan Zee Bridge with two, new single-level or dual-level structures north of the existing bridge.
- ***Highway:*** The four alternatives included highway improvements on Interstate 87/287 in Rockland County as follows:
  - Construction of new truck climbing lanes on eastbound Interstate 87/287 between Interchange 12 (NY Route 303-Palisades Center Drive) and Interchange 11 (Route 9W) and on westbound Interstate 87/287 between Interchange 11 (Route 9W) and the Spring Valley Toll Plaza;
  - Construction of an eastbound auxiliary lane between Interchange 14 (NY Route 59) and Interchange 14A (Garden State Parkway);

- Construction of new collector and distributor roads at Interchange 13 (Palisades Interstate Parkway) in Rockland County;
- Reconstruction of Interchanges 10 (Route 9W) and 11 (Route 9W);
- Reconfiguration of highway features to accommodate future bus rapid transit and commuter rail infrastructure; and
- Two project alternatives also included High Occupancy Vehicle/High Occupancy Toll (HOV/HOT) lanes in the center median of a widened Interstate 87/287 right-of-way, extending from Interchange 9 (Route 9) in Westchester County to Interchange 15 (NJ Route 17 South) in Rockland County.

- ***Transit:*** The four alternatives included new commuter rail (CRT) and Bus Rapid Transit (BRT) service. The commuter rail service would extend from Suffern across the replacement Tappan Zee Bridge to Tarrytown with a direct connection to MNRR's Hudson Line. The proposed bus rapid transit service would extend from Hillburn to Port Chester within shared BRT and HOV lanes on Interstate 87/287. BRT and CRT Stations along with ancillary facilities (e.g. parking lots) would be required throughout the corridor.

Recent Financial Cost Estimates for the Tappan Zee Bridge/I-287 Corridor Project

In 2011, while advancing financial analyses, it was determined that funding for the $16 billion (in 2012 dollars) Tappan Zee Bridge/I-287 Corridor Project (components including: bridge replacement, highway improvements, and new transit service) was not financially feasible at the time. It is instructive to understand the most recent cost estimates for the transit components. These costs were developed based on the fuller development of the design and operating plans for the proposed BRT and CRT systems. These costs have not been published, as the previous study was terminated before that information was available to the public.

Implementation of any BRT system is highly dependent upon and tied very closely to the highway and/or local street system. Any new BRT system must be integrated into the existing roadway network, and in the previous study that interaction was extensive over the 30 mile corridor. Therefore, highway modifications must be advanced hand-in-hand with BRT improvements.

The original BRT estimate was predicated on only one concept, in which the BRT would run in the HOV lanes in Rockland, and in local streets (with some new dedicated sections) in Westchester. That scenario indicated an estimate of $1 billion for the BRT and $2billion for the HOV, or approximately $3billion for the operating BRT system. This was the 2005 design concept and cost estimate which was escalated to 2012 dollars in 2007.

Since 2007, the development of BRT options has evolved. Most significantly, a dedicated bus way BRT option was added to the analysis. This would be used in Rockland in lieu of an HOV facility. It was also introduced for the entire Westchester route as an alternative to the original integrated street system.

By 2010, four BRT scenarios had been identified, with bus-way and bus-lane components paired in each of the two Counties:

Alt B: Rockland Bus way / Westchester Bus way

Rockland = $1.0B Highway; $2.5B BRT / Westchester = $1.7 BRT = $1.0B Highway; $4.2B **Total = $5.2B**

Alt C: Rockland Bus way / Westchester Bus lane

Rockland = $1.0B Highway; $2.5B BRT / Westchester = $1.0B BRT = $1.0B Highway; $3.5B **Total = $4.5B**

Alt D: Rockland HOV / Westchester Bus way

Rockland = $3.1B Highway; $0.5B BRT / Westchester = $1.7B BRT = $3.1B Highway; $2.2B **Total = $5.3B**

Alt E: Rockland HOV / Westchester Bus lane

Rockland = $3.1B Highway; $0.5 BRT / Westchester = $1.0 B BRT = $3.1B Highway; $1.5B **Total = $4.6B**

Based on these four alternatives, the designs and cost estimates are significantly higher than the 2007 estimate. These costs have not been published, as the previous study was terminated before that information was available to the public... As indicated, when accounting for any of the configuration combinations across the 30 mile corridor, the total cost for an operating BRT system ranges from $4.5 to $5.3 billion. This does not include an estimated $75M for vehicles and equipment and $80M annual cost for operating the system.

In terms of CRT, the updated designs and cost estimate indicate $4.4B to $4.6B for the CRT infrastructure, plus an additional $340M to $620M for modifications to the bridge, or approximately $5.0B for the operable CRT system. This does not include an estimated $585M for vehicles and equipment and $190M annual cost for operating the system. Furthermore, all of the above referenced costs are presented in 2012 dollars, and must be escalated to the actual future time frame of implementation to account for true future costs.

NYMTC 2035 Regional Transportation Plan - "*A Shared Vision for a Shared Future*"

The New York Metropolitan Transportation Council (NYMTC) is the metropolitan planning organization required by federal transportation regulations for the region, which covers a ten-county region (five boroughs of NYC, Nassau and Suffolk Counties on Long Island, plus

Westchester, Rockland and Putnam Counties in the Lower Hudson region). NYMTC adopted a Regional Transportation Plan on September 24, 2009.

The Planning period covered by the Plan is 2010-2035. Page 1-22 states: "The region's most pressing need will be finding ways to comprehensively stabilize funding for the day-to-day operations and maintenance of the transportation system and obtain sufficient Federal, State and local capital resources to achieve and maintain a State-of-Good-Repair for the system in the long-term. The second most pressing need will be to complete the four foundation projects and to identify resources to design and implement the strategic transportation improvements beyond the foundation projects."

The construction/reconstruction of the previous Tappan Zee Bridge/I-287 Corridor Project was not included in the financially constrained portion of the Plan (Chapter 6) because sufficient finances for that improvement were not identified at the time the Plan was approved.

Transportation Plan Needs

The Plan categorizes transportation needs (highways and transit) according to

- State-of-Good-Repair and Normal Replacement (SOGR/NR) needs include vehicle fleets and infrastructure components such as tracks, maintenance facilities, stops, stations.
- Operating and Maintenance section
- System enhancements

Table 7-4 of the RTP summarizes the 25 year needs for both highways and transit:

- SOGR & Normal Replacement $289.8
- Operations & Maintenance $661.1
- Plus system enhancements $35.4

Total $986.3 Billion (Year of Expenditure)

Federal, State, Local and Other Funding Resources

Resource estimates in the Plan were based on April 1, 2005 New York State DOT allocation tables for transportation resources. The forecasts of likely resources available during the long-range planning period were developed using a number of assumptions about various funding categories and programs, together with assumptions of future Federal transportation legislation. Using these assumptions and forecasting methodologies, forecasts of resources anticipated to accrue to the region have been developed for the 2010-2035 planning period.

Transportation Plan Summary

The Plan estimates that a total of $969.5 billion from existing resources will be available during the period of the Plan. The Plan notes that this level of funding is sufficient to support the

operations and day-to-day maintenance of the highway and transit systems. It will also be sufficient to support all SOGR/NR needs of the transit system and most, but not all, of the SOGR/NR needs of the highway system. With an estimate of $986.3 billion in transportation needs, roughly $16 billion in new funding will need to be identified to accommodate all of the highway system's SOGR/NR needs during the twenty-five year period. This would be in addition to the additional funding needed to support Tappan Zee Bridge/I-287 Corridor Project alternatives.

New Project Direction

Based upon the information in the recent cost estimates and the current funding levels both from federal and state sources and systematic review of the financial analysis in the various transportation plans, it was determined that funding for the Tappan Zee Bridge/I-287 Corridor Project (components including bridge replacement, highway improvements, and new transit service) was not financially feasible at this time.

In light of the difficult balancing necessary when current and future needs exceed available resources both present and future, it was determined that remedying the structural and operational deficiencies, it was imperative to address the critical infrastructure needs while not precluding transit options in the future. Therefore, it was determined that the scope of the project should be limited, and efforts to replace this Hudson River crossing independent of the transit and highway elements should be advanced.

On October 12, 2011, FHWA and FTA published an NOI to rescind the Tappan Zee Bridge/I-287 Corridor Project, thereby concluding the environmental review process for the combined study of bridge, highway, and transit elements. On that same date, FHWA published an NOI for the Tappan Zee Hudson River Crossing Project to examine alternatives for an improved Hudson River crossing between Rockland and Westchester Counties. As described in the NOI, FHWA, as the federal lead agency, and NYSDOT and NYSTA, as joint lead agencies, are preparing an EIS to identify alternatives for an improved Hudson River crossing and to document the potential environmental impacts of the alternatives. Although the Tappan Zee Hudson River Crossing Project is undertaking an independent environmental review, the EIS relies on previous relevant documents prepared for the Tappan Zee Bridge/I-287 Corridor Project.

Status of previous studies

The previous studies for the Highway and Transit components of the Tappan Zee Bridge/I-287 Corridor Project will not be advanced further at this time. However, the documentation to date from the previous study is available to inform any future planning studies or environmental studies as they may be related to any component of the previous project.

New Project Purpose-Need and Goals-Objectives

The Purpose and Need Statement and Goals and Objectives for the new Tappan Zee Hudson River Crossing Project have two statements that address how transit is considered as part of the project. The statements are 1) a goal of this project is to not preclude future transit and 2) a goal of this project is to maximize the public investment in a new Hudson River Crossing by providing a cost-effective crossing that maximizes value over the lifespan of the structure.

"Not to preclude Transit": "Not to preclude" transit for this project is defined broadly as not to foreclose, prevent, exclude or prohibit the planning, design ,construction or consideration of future transit alternatives. Future transit alternatives are presently not considered reasonably foreseeable transportation improvements. (FHWA defines reasonably foreseeable as being part of the fiscally constrained portion of the Metropolitan Planning Organization's long range plan). Although these improvements are not presently considered reasonably foreseeable, it is possible that transit may be considered in this corridor during the structural lifespan of the new crossing. Therefore, it is the projects goal not to foreclose or preclude transit options and leave enough flexibility so that environmental requirements can be satisfied for future studies for these improvements. The "Not to preclude transit" goal can be satisfied for any of the present alternatives because any future transit improvement could be advanced along this corridor or any other corridor across the Hudson River, if it was deemed appropriate. Furthermore, a separate transit bridge could be feasibly built at any location including along the alignment of the new crossing. Any future project would require the necessary environmental review, studies and permits.

"Maximizing the Public Investment": Given that the desired lifespan for a new critically important river crossing is 150 years, it is prudent to maximize the public investment of any new crossing. As stated above, the previous project identified highway improvements and transit improvements for the 30-mile corridor. Even though these improvements are not considered reasonably foreseeable at the present time, over the 150 year lifespan of a new crossing many improvements may be considered and needed in the corridor and hence, may need to be incorporated into the crossing. Potential improvements may include HOV lanes or Bus lanes for Bus Rapid Transit (BRT) and Commuter Rail Transit (CRT). Given the importance of this crossing and the size of the investment currently under consideration for the new crossing, it is a prudent and practical decision to design the new bridge to optimize the flexibility for potential future transportation modes that are not foreseeable now, but may be over the lifespan for the crossing. In the preliminary design process for the current crossing, the following provisions are being added to optimize the flexibility of future modes and maximize the public investment.

BRT Provisions:

- Additional width on new crossing– the additional width of the crossing is needed for operational redundancy of the highway lanes in the event that one structure is closed. The additional width also has immediate utility as an emergency access area to help improve operations and accident response times on a new crossing. The additional width, however, could be converted to HOV or BRT lanes in the future if appropriate studies deemed this corridor and alignment appropriate. If this conversion did take place in the future, emergency access could revert back to the use of the full shoulders.

CRT Provisions:

- The width of a gap between the two structures is proposed to be approximately 40 feet to facilitate potential future transit modes to operate on a new deck that may span the gap at a later date.
- The proposed design for the new highway bridge foundations and substructures must provide for a robust structure that meets the standard highway loadings and seismic criteria. The design for the foundations and substructures will also include provisions for additional strengthening so they could support potential future CRT loadings.
- The proposed design will provide a vertical profile that improves safety and operations on the bridge. This profile would also meet the required grades of CRT.

The additional current cost for strengthening the replacement bridge to allow for any future transit service within the gap between structures, would be approximately $200 to $300 million. Should implementation of transit occur in the future, an additional approximate $500 to $700 million (in 2012 dollars) would be required to implement the future transit infrastructure across the bridge. In total, the cost for transit service within the gap would be $700 million to $1 billion. In comparison, a new, exclusive transit bridge across the river would cost between $2 billion and $3 billion. In short, including some provisions for CRT has the potential to save between $1 billion and $2 billion, for the bridge alone. Even if transit was not implemented in the future, the investment of strengthening the replacement bridge would have immediate and long term public benefits by providing an increased factor of safety in the structural design for the foundations and substructures and increasing the ability of the structures to withstand significant natural events. Therefore, based upon the above information, additional strengthening and a gap between the two new structures are considered prudent at this time. (It should be noted from the discussion above that any option for future transit service would require an additional $3B to $6B in funds (in 2012 dollars) as well as land for construction of upland transit infrastructure (i.e., right-of-way, stations, parking, and ancillary facilities)).

Any investment at the present time, as described above, should not and cannot bias future studies of any transportation improvement. Any future study must examine a full range of alternatives and cannot use the investments proposed by this project to bias the decision making in choosing any alternatives.

Conclusion

The above serves as the basis to advance the Tappan Zee Hudson River Crossing Project.

Appendix A: Project Planning and Development

A-2 Project Plans-Short Span Option

TAPPAN ZEE HUDSON RIVER CROSSING PROJECT
ENVIRONMENTAL REVIEW

JAN 18, 2012 SHORT SPAN BRIDGE

DEIS APPENDIX A ISSUE

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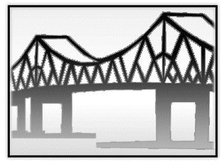
B-4120 TO B-4131 BRIDGE CROSSING
B-4140 TO B-4144 WESTCHESTER LANDING BRIDGE APPROACH
B-4150 BRIDGE FOUNDATIONS
B-4199 LEGENDS



ARUP

Thruway Authority

New York State
Department of Transportation

SHORT APPROACH SPAN - BRIDGE REPLACEMENT
DRAWING LIST

DRAWING NUMBER	DRAWING NAME	CURRENT STATUS	SCALE
OVERALL BRIDGE CROSSING			
B-4100	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING PLAN	DEIS APPENDIX A - FINAL ISSUE	1"=600'-0"
B-4101	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - TYPICAL CROSS SECTION AND PROFILE	DEIS APPENDIX A - FINAL ISSUE	1"=500'-0"
B-4102	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - TYPICAL CROSS SECTIONS	DEIS APPENDIX A - FINAL ISSUE	1"=50'-0"
ROCKLAND COUNTY - BRIDGE APPROACH			
B-4110	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE APPROACH PLAN - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
B-4112	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE APPROACH PROFILES - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=200'-0"
B-4113	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - CROSS SECTIONS - SHEET 1 OF 2 - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=25'-0"
B-4114	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - CROSS SECTIONS - SHEET 2 OF 2 - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=25'-0"
B-4115	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - MAINTENANCE RAMP PLAN - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=50'-0"
B-4116	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - MAINTENANCE RAMP PROFILES - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
B-4117	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - SOUTH BROADWAY BRIDGE - PLAN & PROFILE - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=50'-0"
BRIDGE CROSSING			
B-4120	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING PLAN - SHEET 1 OF 5	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
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B-4124	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING PLAN - SHEET 5 OF 5	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
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B-4126	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING PROFILES - SHEET 2 OF 3	DEIS APPENDIX A - FINAL ISSUE	1"=200'-0"
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B-4131	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING - MAIN SPAN WITH CABLE STAYED	DEIS APPENDIX A - FINAL ISSUE	N.T.S.
WESTCHESTER COUNTY - BRIDGE APPROACH			
B-4140	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE APPROACH PLAN - SHEET 1 OF 2 - WESTCHESTER COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
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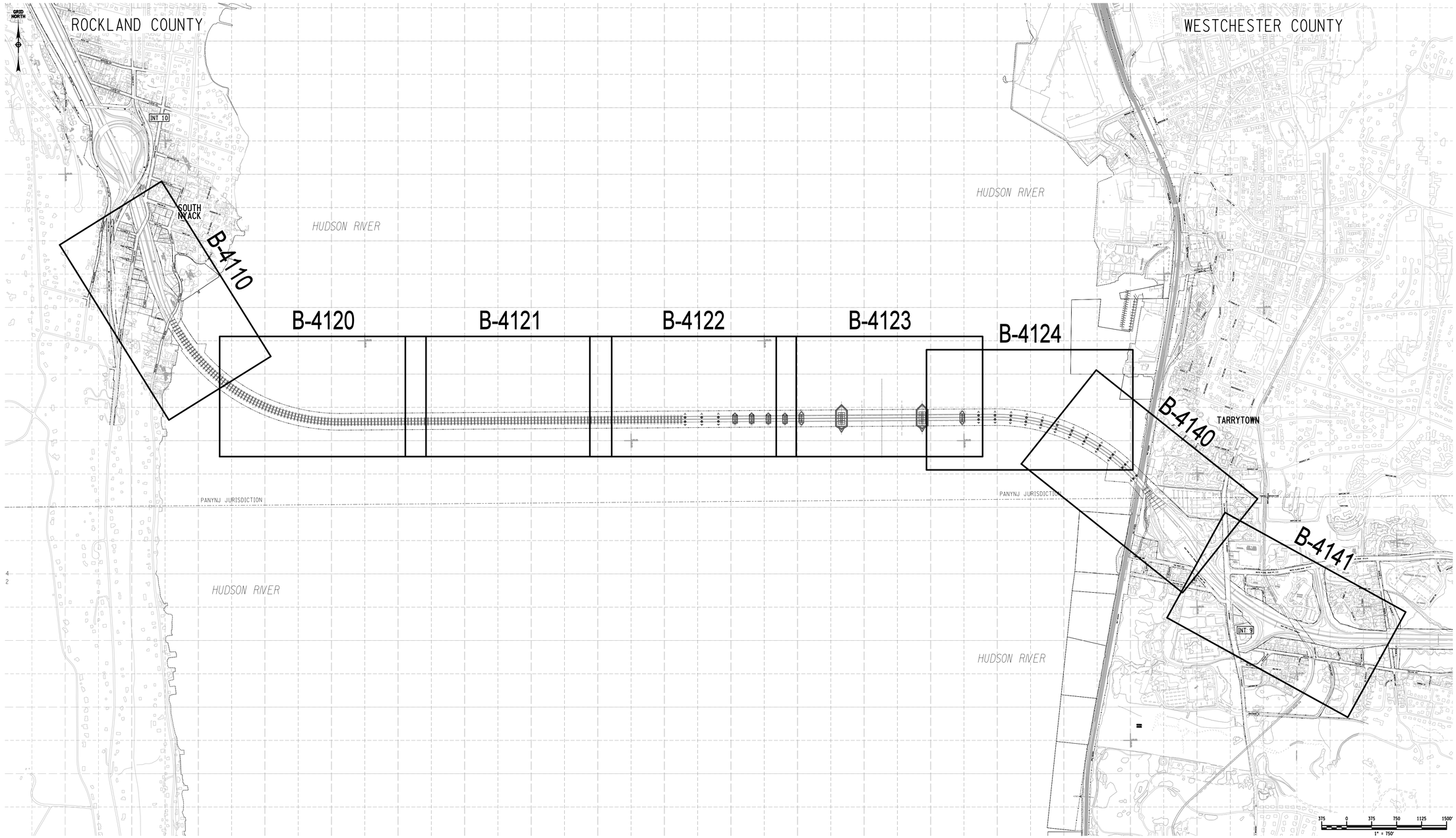
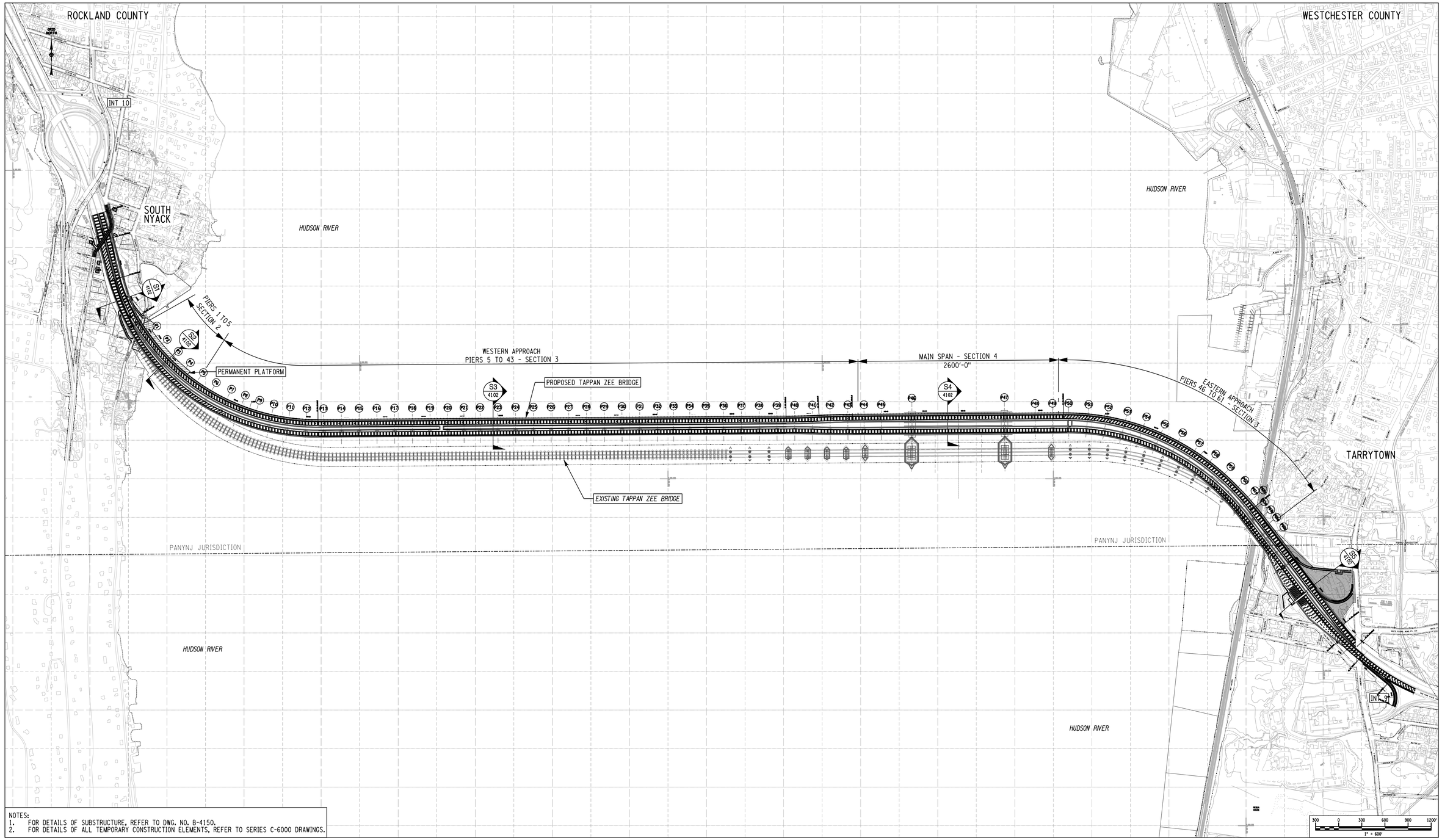
B-4142	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE APPROACH PROFILES - WESTCHESTER COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=200'-0"
B-4143	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - CROSS SECTIONS - SHEET 1 OF 2 - WESTCHESTER COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=25'-0"
B-4144	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - CROSS SECTIONS - SHEET 2 OF 2 - WESTCHESTER COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=25'-0"
OTHER DETAILS			
B-4150	FOUNDATION DRAWING - SHORT APPROACH SPAN - BRIDGE REPLACEMENT	DEIS APPENDIX A - FINAL ISSUE	1"=300'-0"
B-4199	SHORT APPROACH SPAN - BRIDGE REPLACEMENT - LEGENDS	DEIS APPENDIX A - FINAL ISSUE	NTS

NOTE:
1. THE SCALE MENTIONED IN THE DRAWINGS LIST IS FOR 22X34 SIZE (FULL SIZE) DRAWINGS. FOR 11X17 SIZE DRAWINGS, PLEASE DOUBLE THE GIVEN SCALE IN THE DRAWING.

SHORT SPAN BRIDGE REPLACEMENT
KEY PLAN





NOTES:
1. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. NO. B-4150.
2. FOR DETAILS OF ALL TEMPORARY CONSTRUCTION ELEMENTS, REFER TO SERIES C-6000 DRAWINGS.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

ARUP
Arup USA, Inc.
77 Water Street
New York, NY 10005
Tel (212) 896 3000
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Thruway Authority

TAPPAN ZEE HUDSON RIVER CROSSING PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

BRIDGE CROSSING PLAN

DRAWING NO. B-4100
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN

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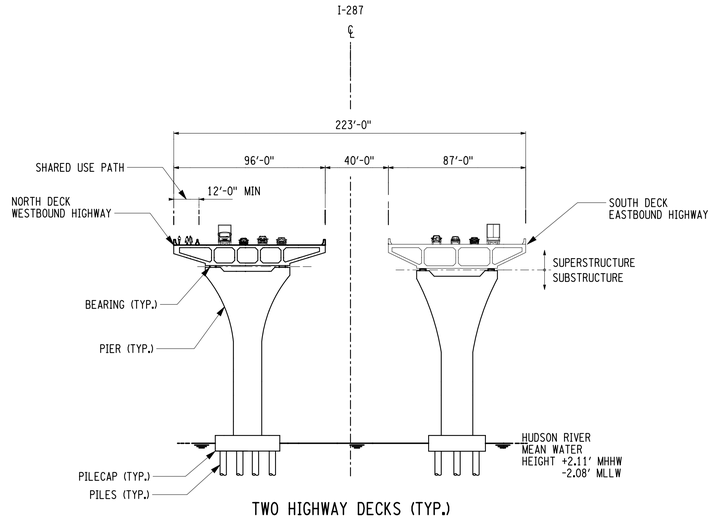
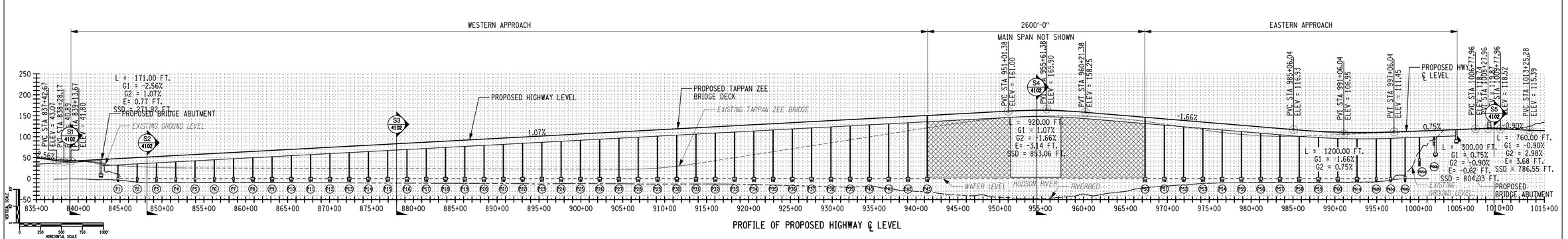


TWO HIGHWAY DECKS (TYP.)
(NOT TO SCALE)



PROFILE OF PROPOSED HIGHWAY ℄ LEVEL

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

ARUP
Arup USA, Inc.
77 Water Street
New York, NY 10005
Tel (212) 896 3000
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TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
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ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

TYPICAL CROSS SECTION AND PROFILE

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217815

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SHEET NO.

DOCUMENT STATUS: DEIS - APPENDIX A

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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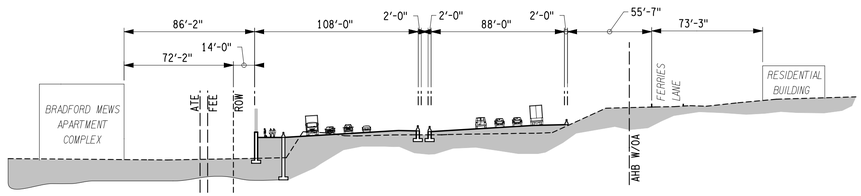
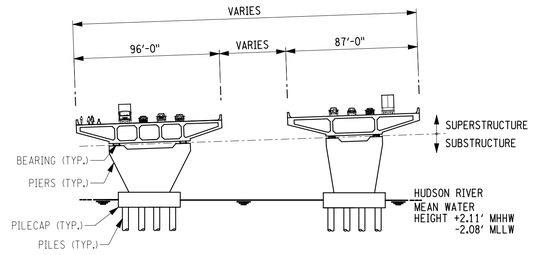
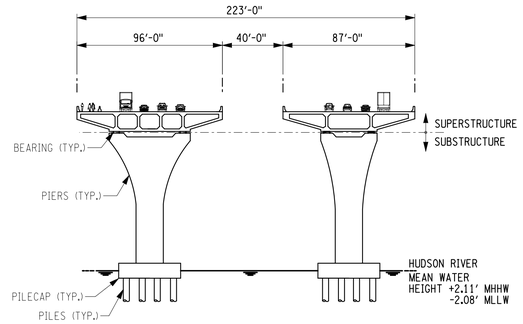
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



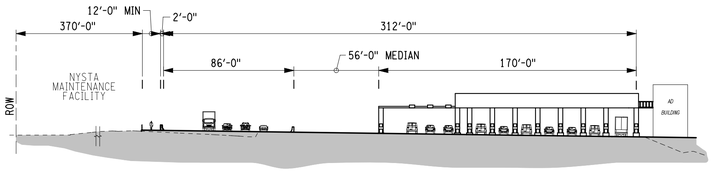
SECTION 1 AT STA. 839+00
SCALE: 1"=50'-0"



SECTION 2 TYPICAL FOR PIERS 1 TO 4
NOT TO SCALE



SECTION 3 TYPICAL FOR PIERS 5 TO 43, AND 46 TO 61
NOT TO SCALE



SECTION 5 AT STA. 1009+00
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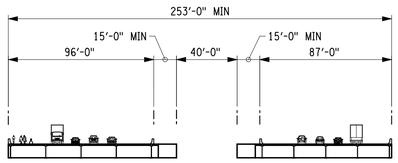

SUPERSTRUCTURE AND SUBSTRUCTURE FOR MAIN SPAN NOT SHOWN.

DETAILS OF THE MAIN SPAN ARCH AND CABLE STAY BRIDGE IS PROVIDED ON B-4130 AND B-4131.

SECTION 4 AT STA. 954+34
NOT TO SCALE

NOTE:
1. FOR PILECAP DIMENSIONS, REFER TO DWG. NO. B-4150.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

ARUP
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Tel (212) 896 3000
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Thruway Authority

TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

TYPICAL CROSS SECTIONS

DRAWING NO. B-4102
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

FILE NAME = J:\@N-Y\131000\131219-00\812 Drawings DEIS\Sheets\@Expedited Bridge DEIS\@Short Span\@B-4102.dgn
DATE/TIME = 1/17/2012 6:28:00 PM
USER = kirby.sicherman
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL

LIMIT OF CONSTRUCTION
EXISTING BRIDGE ABUTMENT
PROPOSED REPLACEMENT OF BROADWAY BRIDGE
RETAINING WALL
MAINTENANCE RAMP
ROCKLAND LANDING STORMWATER TREATMENT AREA UNDERGROUND UNITS (32'X50')
SHARED USE PATH
RETAINING WALL
LIMIT OF CONSTRUCTION
REPLACEMENT TAPPAN ZEE BRIDGE STORMWATER TREATMENT AREA UNDERGROUND UNITS (26'X100')
FOR EXTENT OF TEMPORARY PLATFORM, REFER TO SERIES DWG. C-6000
PERMANENT PLATFORM
RETAINING WALL
EXISTING BRIDGE ABUTMENT
LIMIT OF CONSTRUCTION
NOISE WALL
MAINTENANCE RAMP
RETAINING WALL
RETAINING WALL AT SOUTH OF RAMP
NOISE WALL
PROPOSED BRIDGE ABUTMENT
EXISTING TAPPAN ZEE BRIDGE
PROPOSED TAPPAN ZEE BRIDGE
LIMIT OF CONSTRUCTION
ROCKLAND LANDING STORMWATER TREATMENT AREA UNDERGROUND UNITS (32'X50')
INSET AREA (DWG. NO. B-4115)
SEE DWG. B-4120

NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4112.
2. FOR CROSS-SECTIONS, REFER TO DWG. NO. B-4113, B-4114.
3. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. NO. B-4150.
4. FOR STATIONING ALONG MAINTENANCE RAMPS, REFER TO DWG. NO. B-4115.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

BRIDGE APPROACH PLAN
ROCKLAND COUNTY

DRAWING NO. B-4110
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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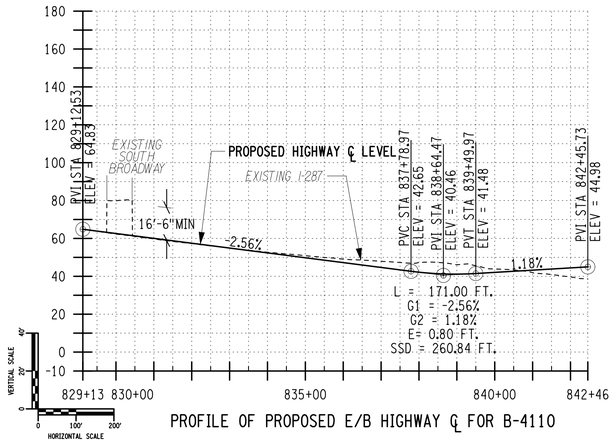
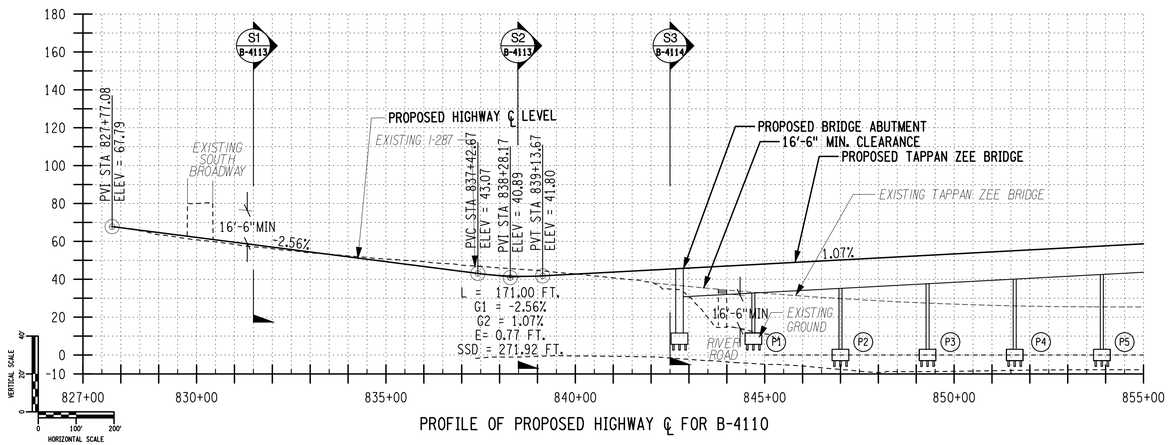
USER = kirby.sicherman

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN



PROFILE OF PROPOSED E/B HIGHWAY ℄ FOR B-4110



PROFILE OF PROPOSED HIGHWAY ℄ FOR B-4110

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER 217815

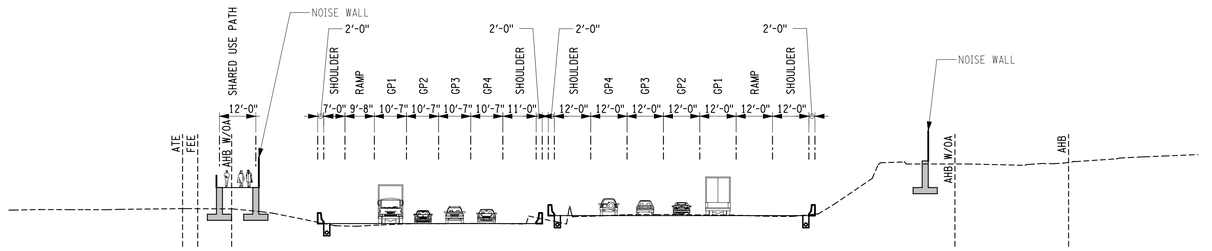
BRIDGE APPROACH PROFILES
ROCKLAND COUNTY

DRAWING NO. B-4112
SHEET NO.

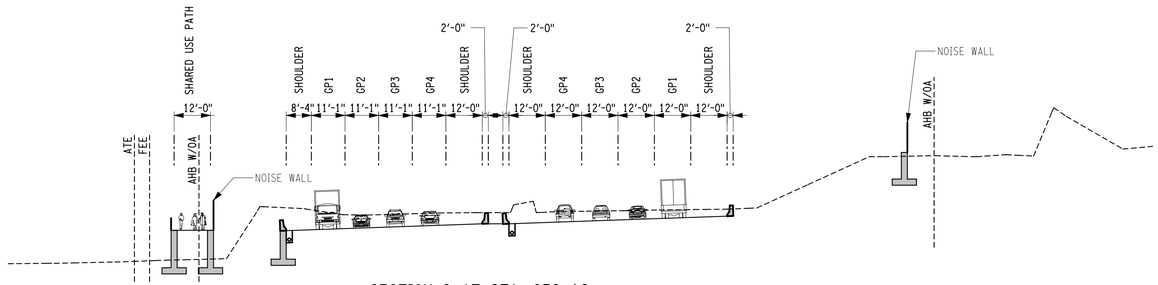
NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

FILE NAME = J:\GN-Y\13100\13219-00\12 Drawings DEIS\Sheets\Expedited Bridge DEIS\Short Span\B-4112.dgn
DATE/TIME = 1/17/2012 6:28:27 PM
USER = kirby.sicherman

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
DRAWN BY HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



SECTION 1 AT STA. 831+00
SCALE: 1"=25'-0"



SECTION 2 AT STA. 838+12
SCALE : 1"=25'-0"

10 0 10 20 30 40 50'
1" = 25'

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

CROSS SECTIONS - SHEET 1 OF 2
ROCKLAND COUNTY

DRAWING NO. B-4113
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

FILE NAME = J:\GN-Y\13100\131219-00\12 Drawings DEIS\Sheets\Expedited Bridge DEIS\Short Span\B-4113.dgn
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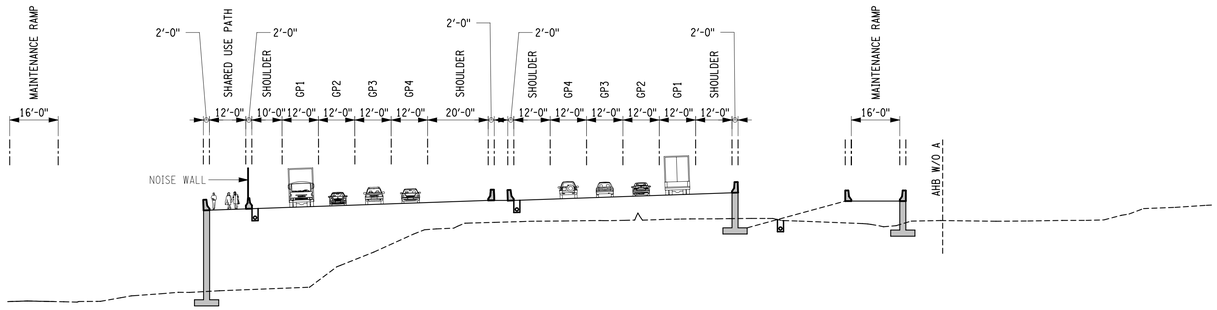
USER = kirby.sicherman
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
DRAWN BY HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



SECTION 3 AT STA. 842+16
SCALE: 1"=25'-0"

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CROSS SECTIONS - SHEET 2 OF 2
ROCKLAND COUNTY

CONTRACT NUMBER
217815
DRAWING NO. B-4114
SHEET NO.

DOCUMENT STATUS: DEIS - APPENDIX A

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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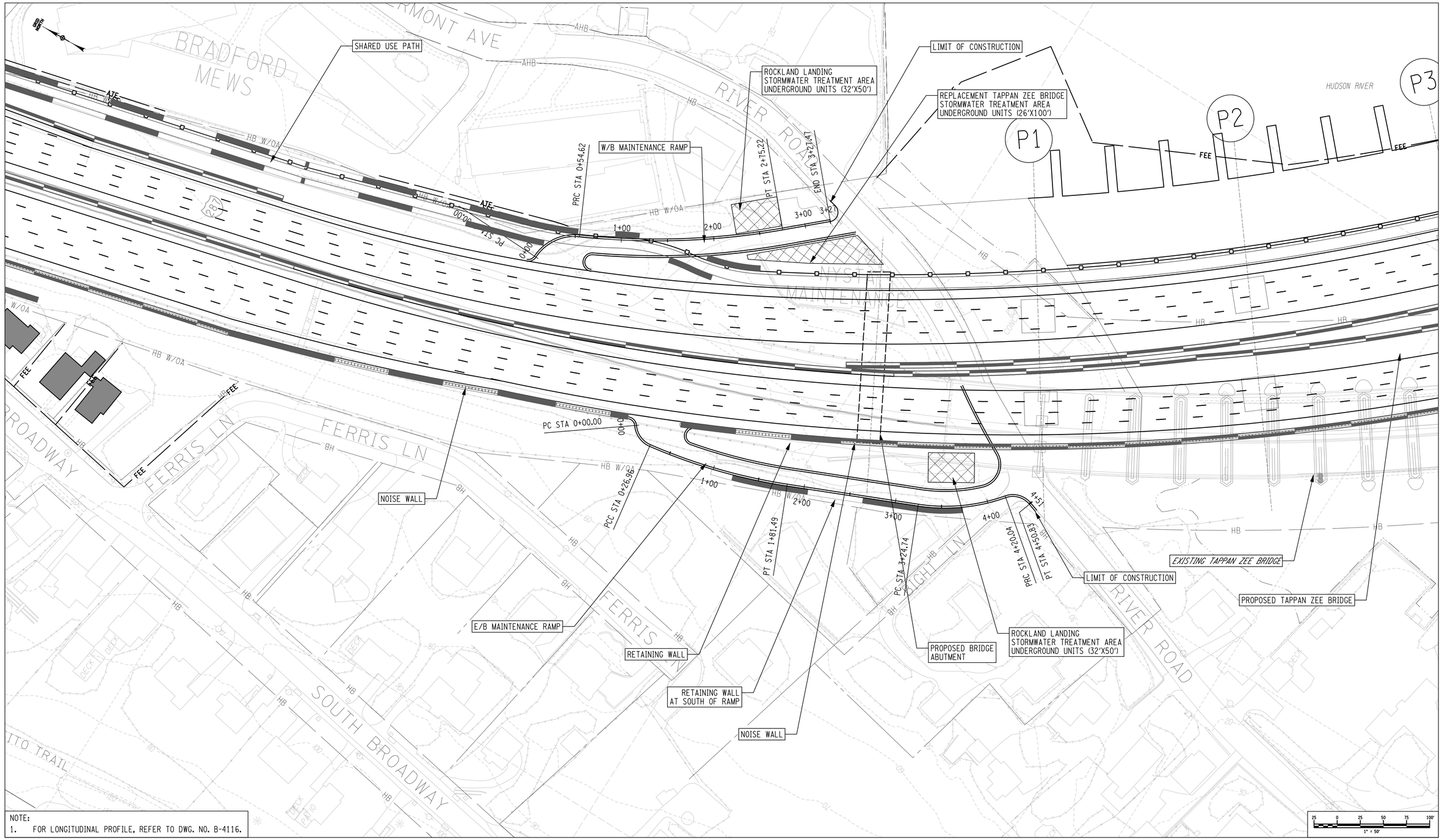
USER = kirby.sicherman

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



NOTE:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4116.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER 217815

MAINTENANCE RAMP PLAN
ROCKLAND COUNTY

DRAWING NO. B-4115
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN
FILE NAME = J:\GN-Y\131000\131219-00\12 Drawings DEIS\Sheets\Expedited Bridge DEIS\Short Span\B-4115.dgn
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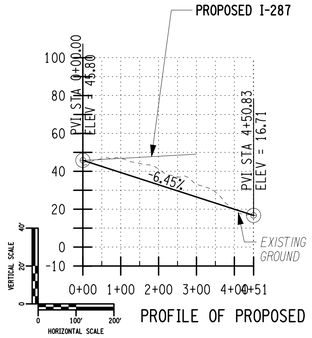
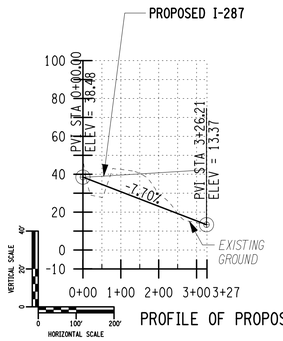


PROFILE OF PROPOSED E/B MAINTENANCE RAMP ℄ FOR B-4115



PROFILE OF PROPOSED W/B MAINTENANCE RAMP ℄ FOR B-4115

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

MAINTENANCE RAMP PROFILES
ROCKLAND COUNTY

DRAWING NO. B-4116
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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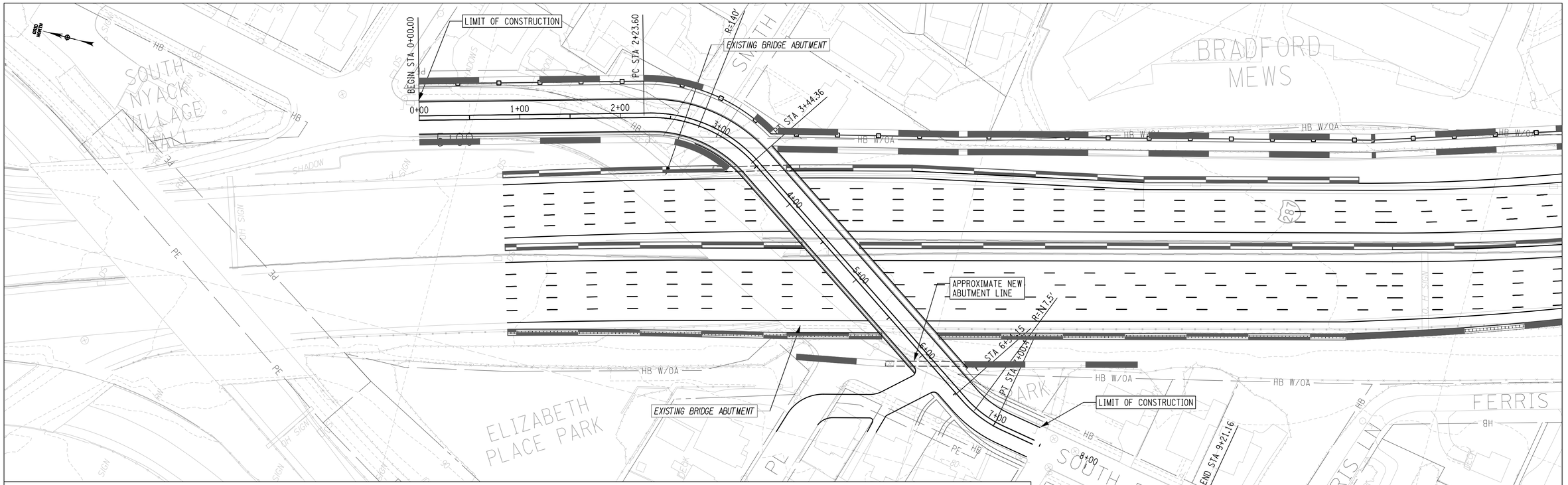
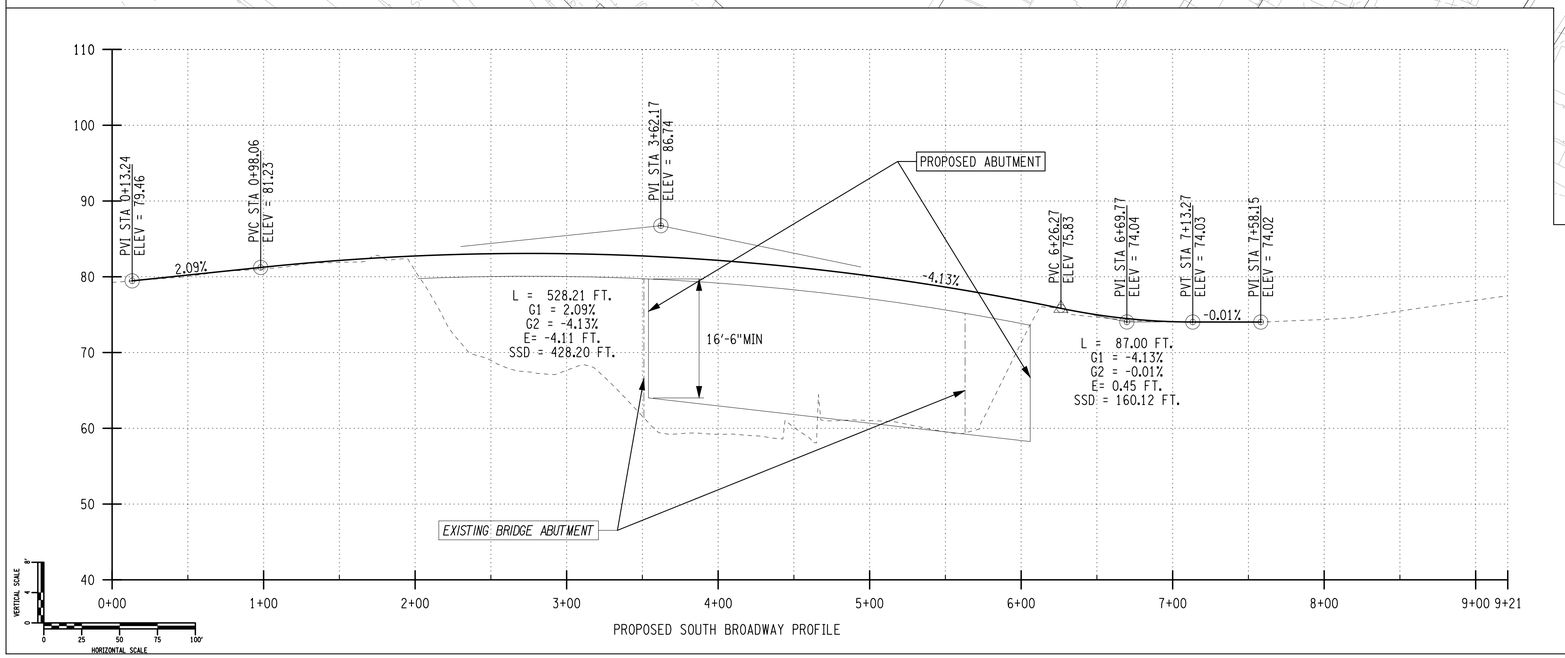
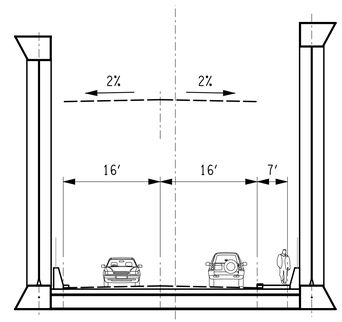
USER = kirby.sicherman
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL







SECTION 1
NTS

1" = 50'

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER 217815

PLAN & PROFILE
ROCKLAND COUNTY

DRAWING NO. B-4117
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL
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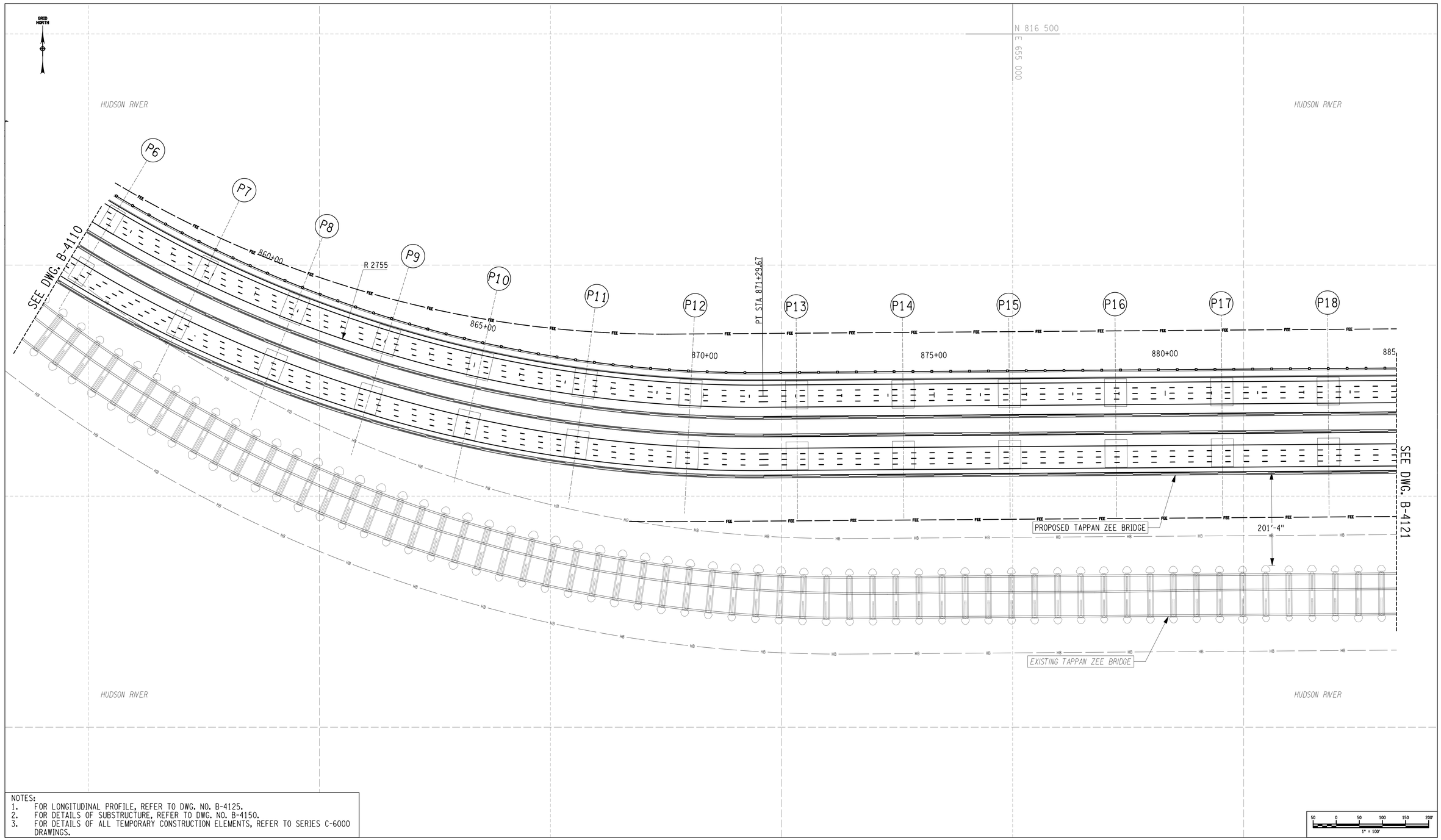

NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4125.
2. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. NO. B-4150.
3. FOR DETAILS OF ALL TEMPORARY CONSTRUCTION ELEMENTS, REFER TO SERIES C-6000 DRAWINGS.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER 217815

BRIDGE CROSSING PLAN
SHEET 1 OF 5

DRAWING NO. B-4120
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL
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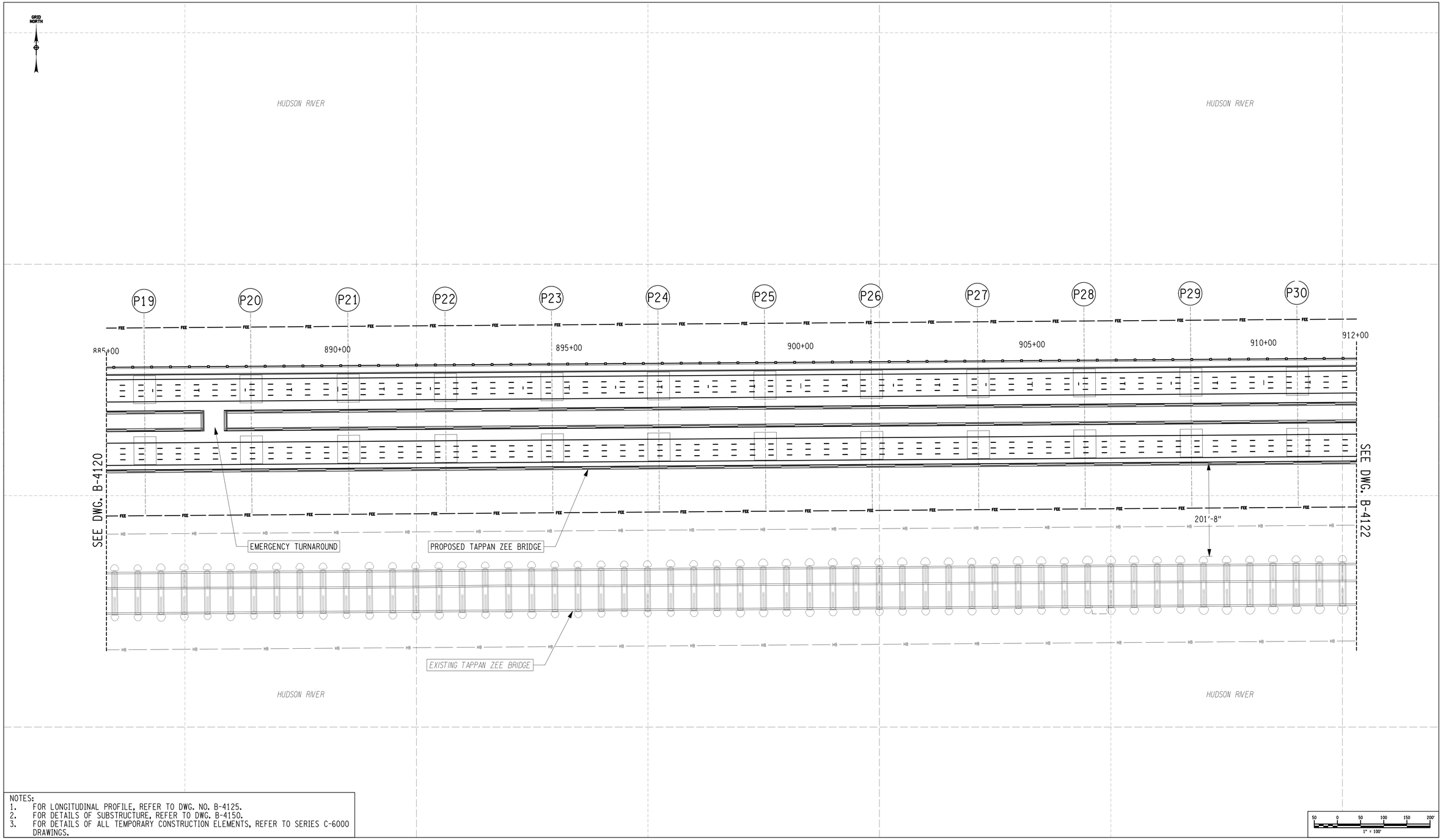
USER = kirby.sitherman



NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4125.
2. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. B-4150.
3. FOR DETAILS OF ALL TEMPORARY CONSTRUCTION ELEMENTS, REFER TO SERIES C-6000 DRAWINGS.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

BRIDGE CROSSING PLAN
SHEET 2 OF 5

DRAWING NO. B-4121
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
CHECKED BY HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN
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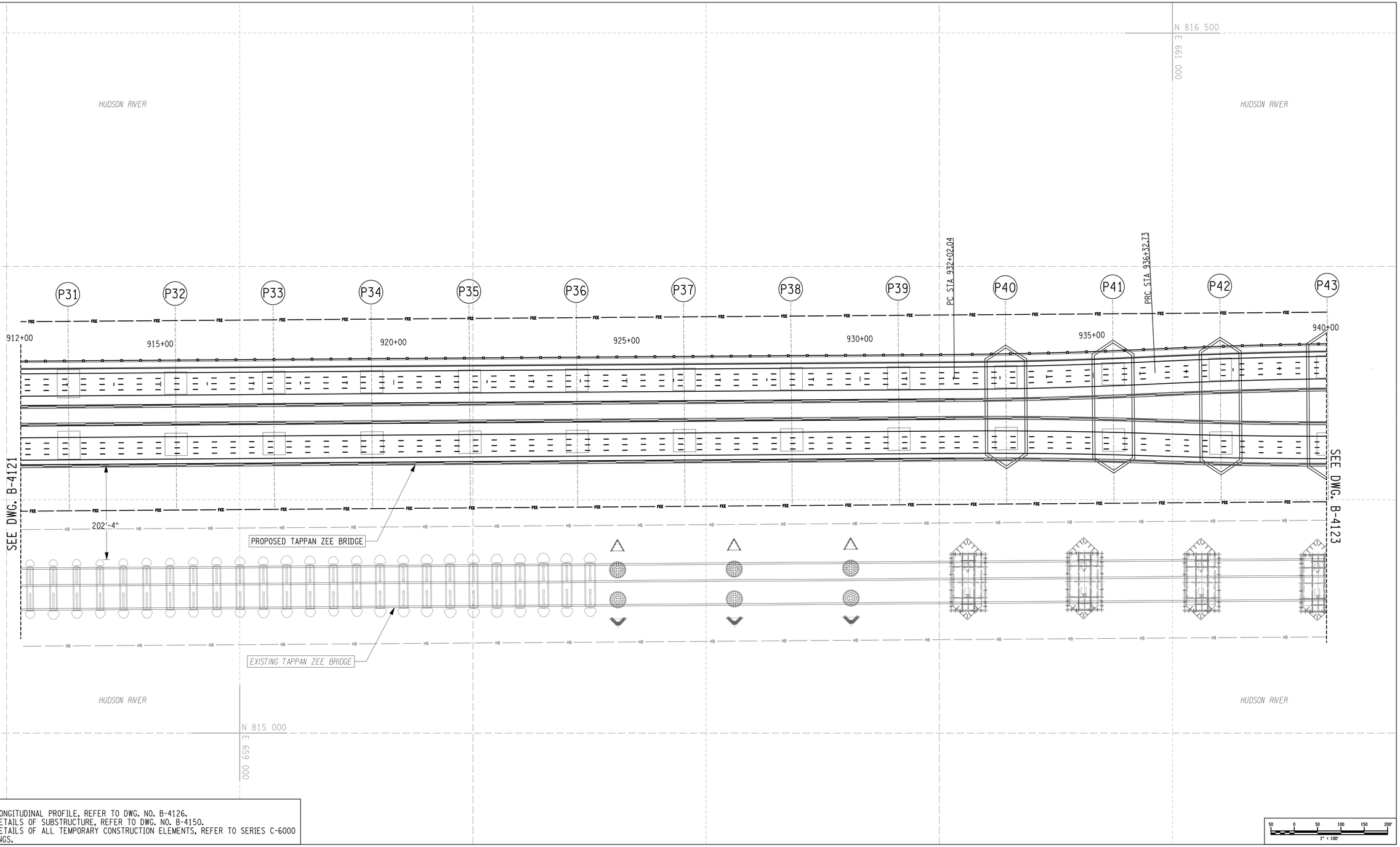

NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4126.
2. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. NO. B-4150.
3. FOR DETAILS OF ALL TEMPORARY CONSTRUCTION ELEMENTS, REFER TO SERIES C-6000 DRAWINGS.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

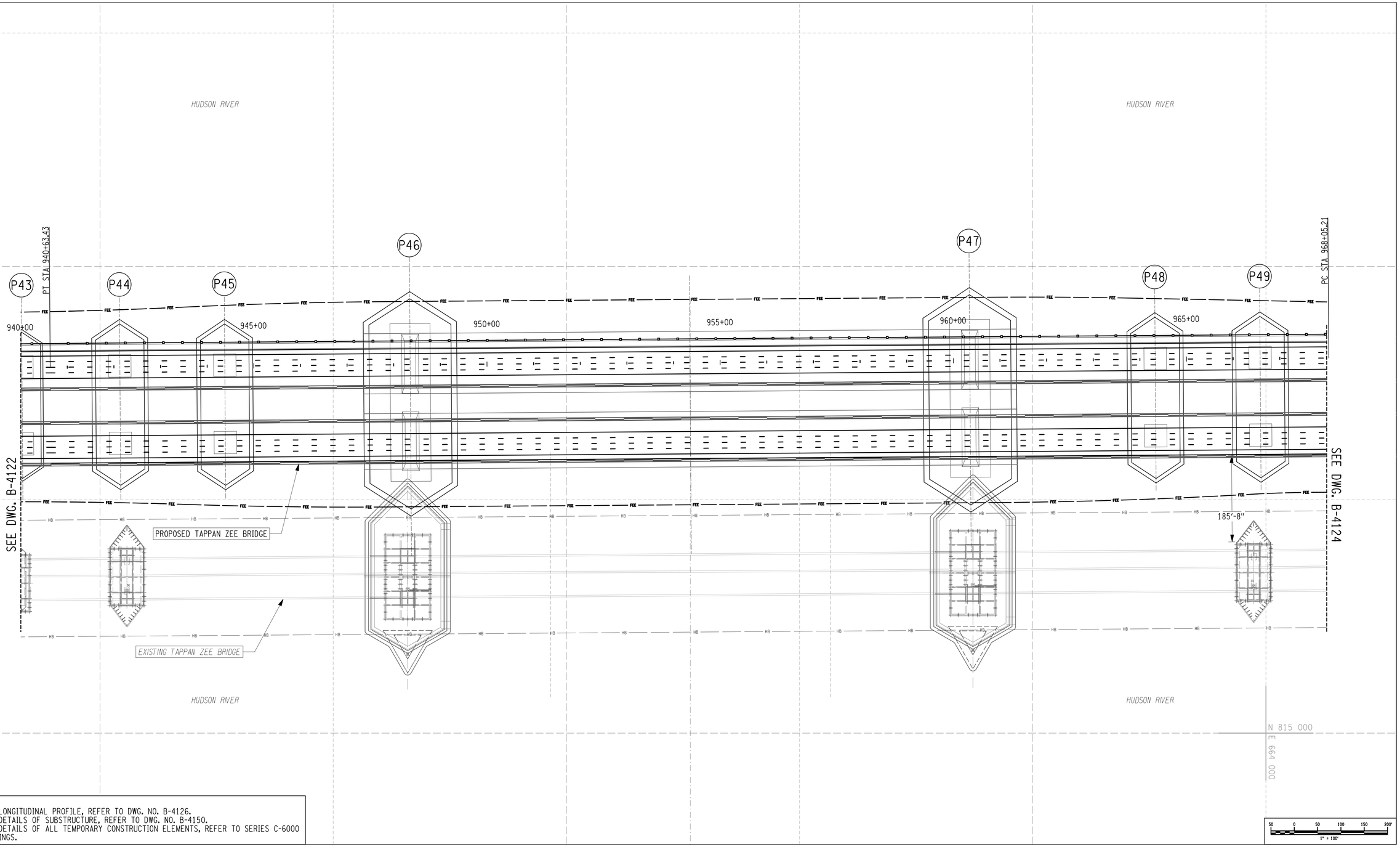
ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

BRIDGE CROSSING PLAN
SHEET 3 OF 5

DRAWING NO. B-4122
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION



NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4126.
2. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. NO. B-4150.
3. FOR DETAILS OF ALL TEMPORARY CONSTRUCTION ELEMENTS, REFER TO SERIES C-6000 DRAWINGS.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

BRIDGE CROSSING PLAN
SHEET 4 OF 5

CONTRACT NUMBER 217815

DRAWING NO. B-4123
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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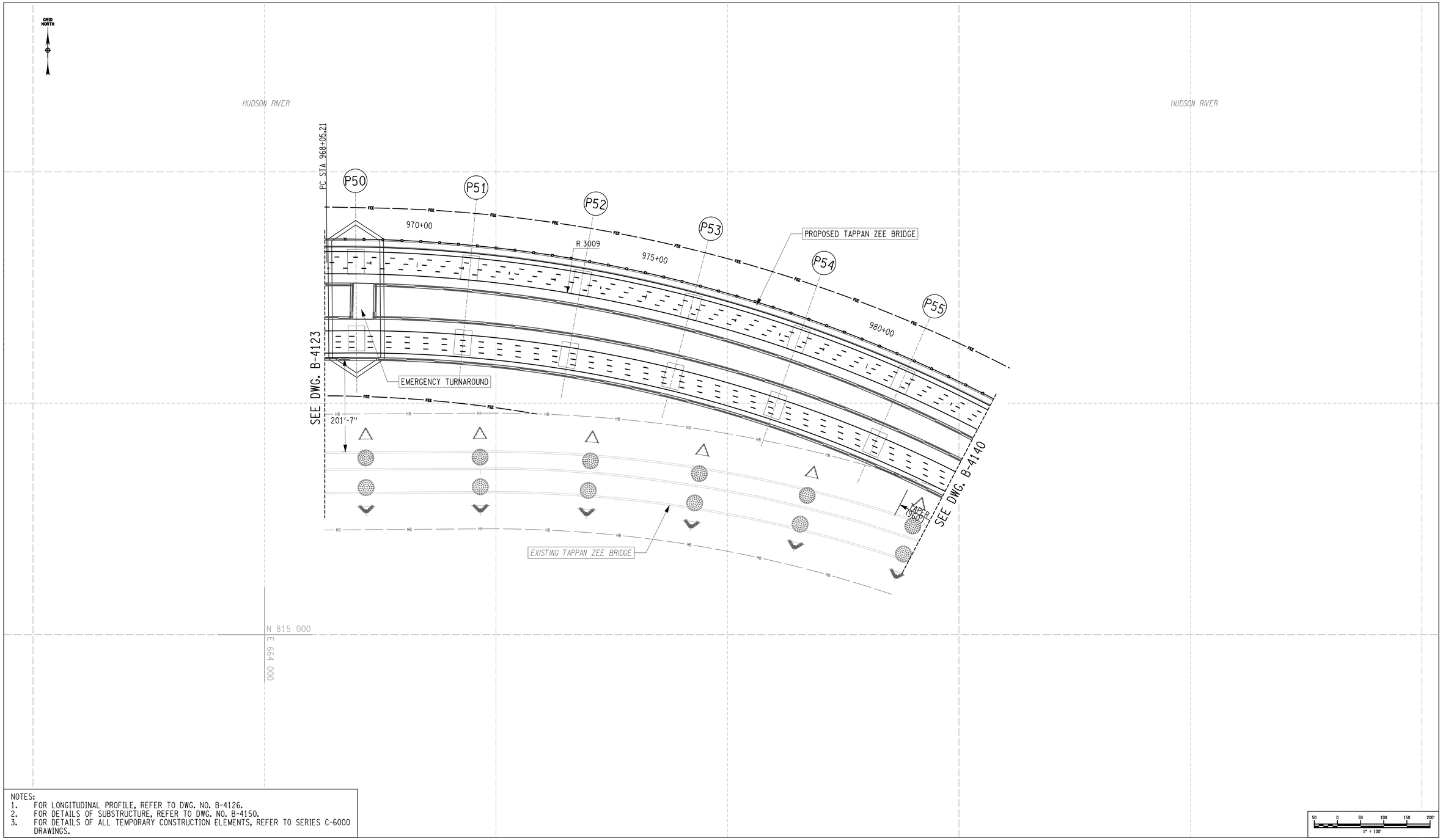
USER = kirby.sicherman

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4126.
2. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. NO. B-4150.
3. FOR DETAILS OF ALL TEMPORARY CONSTRUCTION ELEMENTS, REFER TO SERIES C-6000 DRAWINGS.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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Thruway Authority

TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

BRIDGE CROSSING PLAN
SHEET 5 OF 5

DRAWING NO. B-4124
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE | JOB MANAGER HEMAL PATEL | DESIGNED BY LEE GILL | DRAFTED BY JODY VUKAS | ESTIMATED BY ADAM FINKIN | CHECKED BY HEMAL PATEL | CHECKED

FILE NAME = J:\ØN-Y\131000\131219-00\12 Drawings DEIS\Sheets\Expedited Bridge DEIS\Short Span\B-4124.dgn
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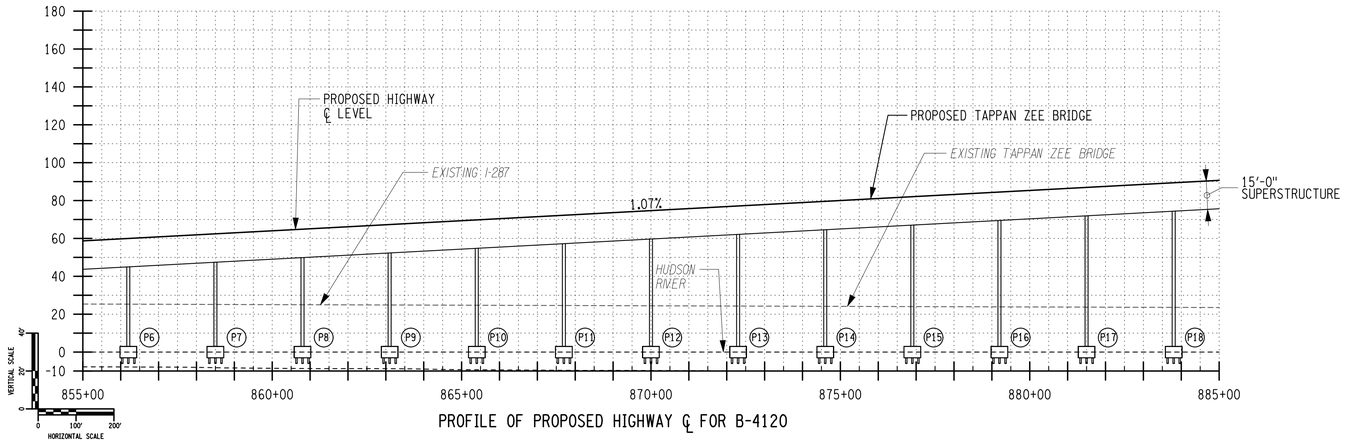
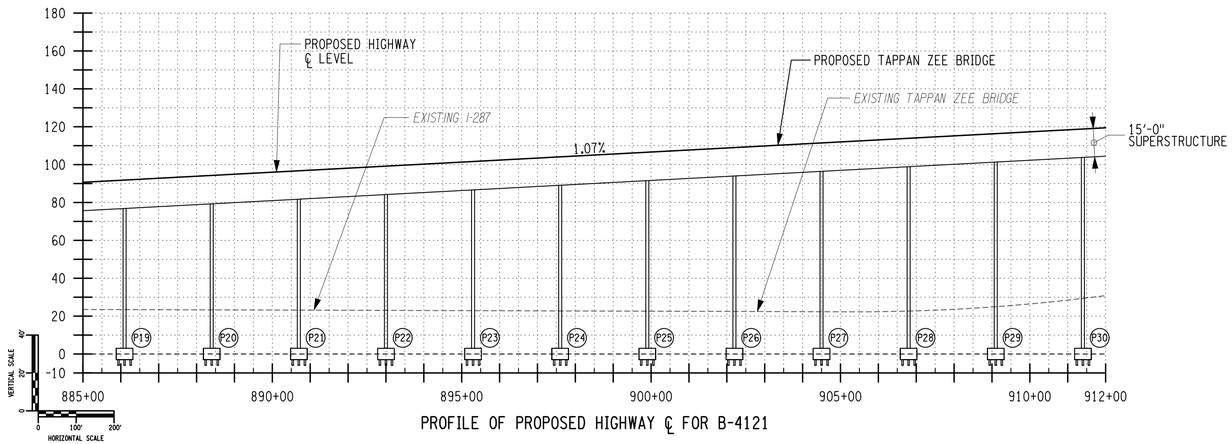


PROFILE OF PROPOSED HIGHWAY ℄ FOR B-4120



PROFILE OF PROPOSED HIGHWAY ℄ FOR B-4121

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1	01/18/12	DEIS APPENDIX A ISSUE	JV
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ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

BRIDGE CROSSING PROFILES
SHEET 1 OF 3

CONTRACT NUMBER 217815

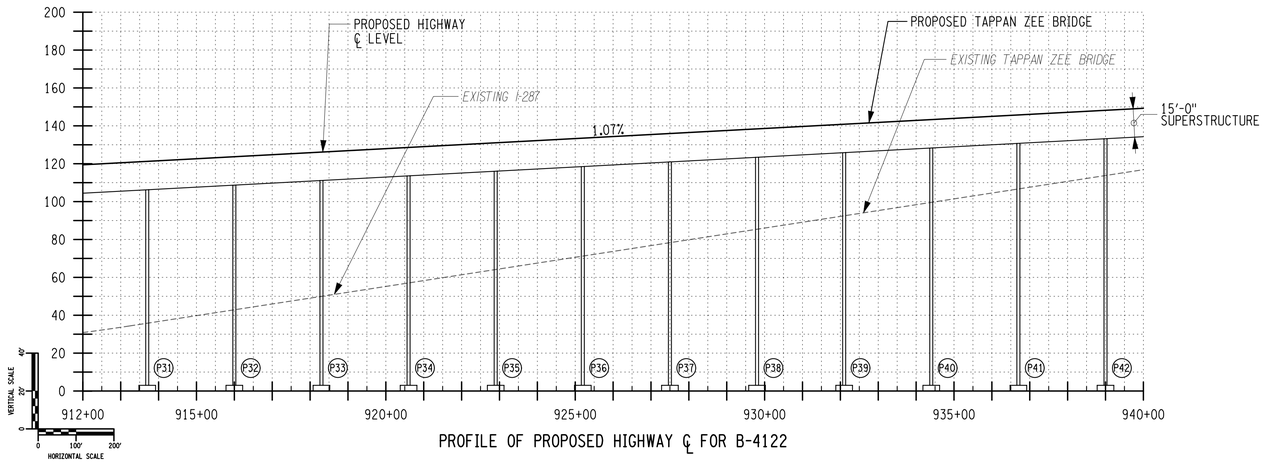
DRAWING NO. B-4125
SHEET NO.

DOCUMENT STATUS: DEIS - APPENDIX A

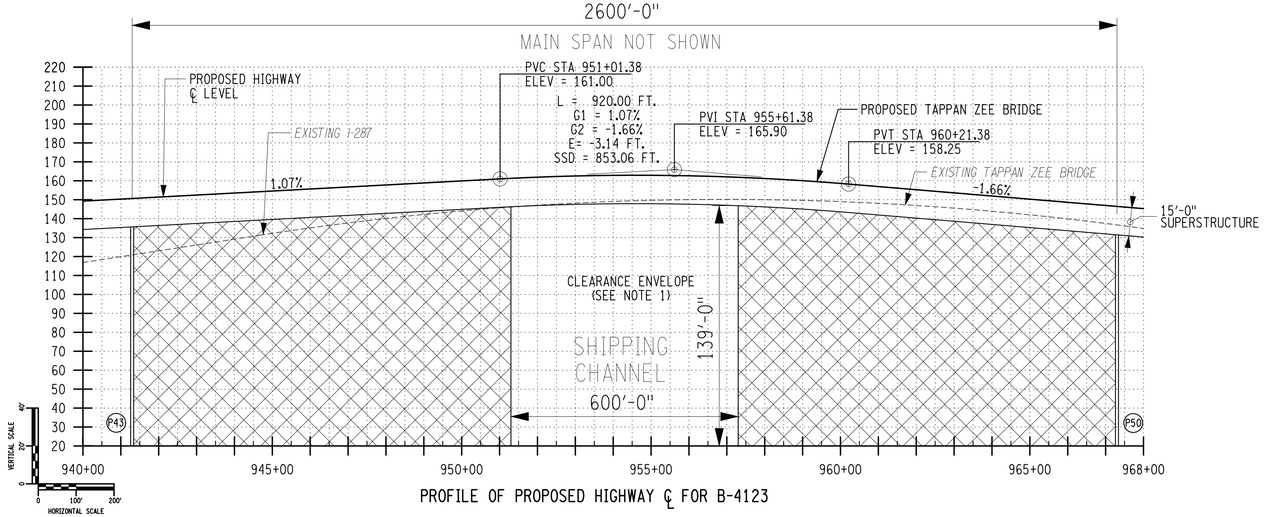
NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

FILE NAME = J:\ØN-Y\Ø131000\Ø131219-00\Ø12 Drawings DEIS\Ø Sheets\Ø Expedited Bridge DEIS\Ø Short Span\Ø B-4125.dgn
DATE/TIME = 1/17/2012 6:29:28 PM
USER = kirby.sicherman

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



PROFILE OF PROPOSED HIGHWAY ℄ FOR B-4122



PROFILE OF PROPOSED HIGHWAY ℄ FOR B-4123

NOTE:
1. FOR DETAILS OF CLEARANCE ENVELOPE REFER TO DWG. NO. B-4130 AND B-4131.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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PROJECT

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CONTRACT NUMBER 217815

BRIDGE CROSSING PROFILES
SHEET 2 OF 3

DRAWING NO. B-4126
SHEET NO.

DOCUMENT STATUS: DEIS - APPENDIX A

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
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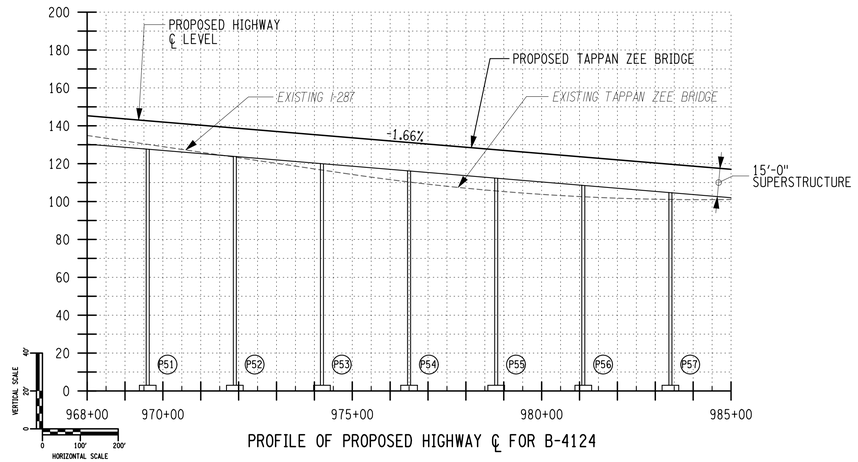

PROFILE OF PROPOSED HIGHWAY ℄ FOR B-4124

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER 217815

BRIDGE CROSSING PROFILES
SHEET 3 OF 3

DRAWING NO. B-4127
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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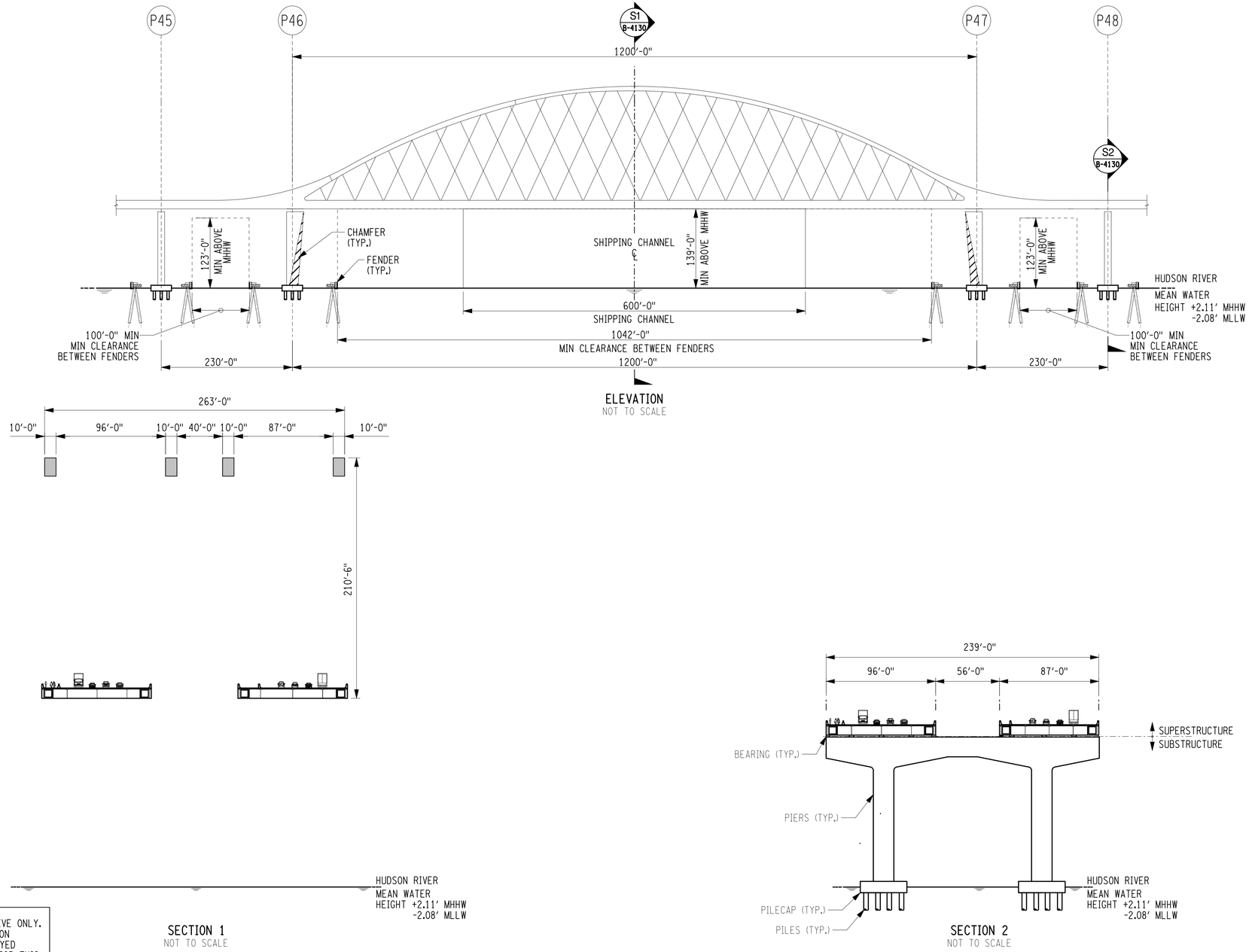
USER = kirby.sicherman

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



ELEVATION
NOT TO SCALE

SECTION 1
NOT TO SCALE

SECTION 2
NOT TO SCALE

NOTE:
1. HORIZONTAL ALIGNMENT SHOWN HERE IS INDICATIVE ONLY. PLEASE NOTE THAT HIGHWAY ALIGNMENT SHOWN ON DRAWINGS HAS BEEN DEVELOPED FOR CABLE STAYED BRIDGE OPTION ONLY. IT SHOULD BE ADAPTED FOR THIS AND OTHER MAIN SPAN OPTIONS.
2. DIMENSIONS ARE FOR ILLUSTRATION PURPOSES ONLY.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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HUDSON RIVER CROSSING
PROJECT

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BRIDGE CROSSING
MAIN SPAN WITH ARCH

CONTRACT NUMBER
217815
DRAWING NO. B-4130
SHEET NO.

DOCUMENT STATUS: DEIS - APPENDIX A

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

FILE NAME = J:\ØN-Y\Ø131000\Ø131219-00\Ø12 Drawings DEIS\ØSheets\ØExpedited Bridge DEIS\ØShort Span\ØB-4130.dgn
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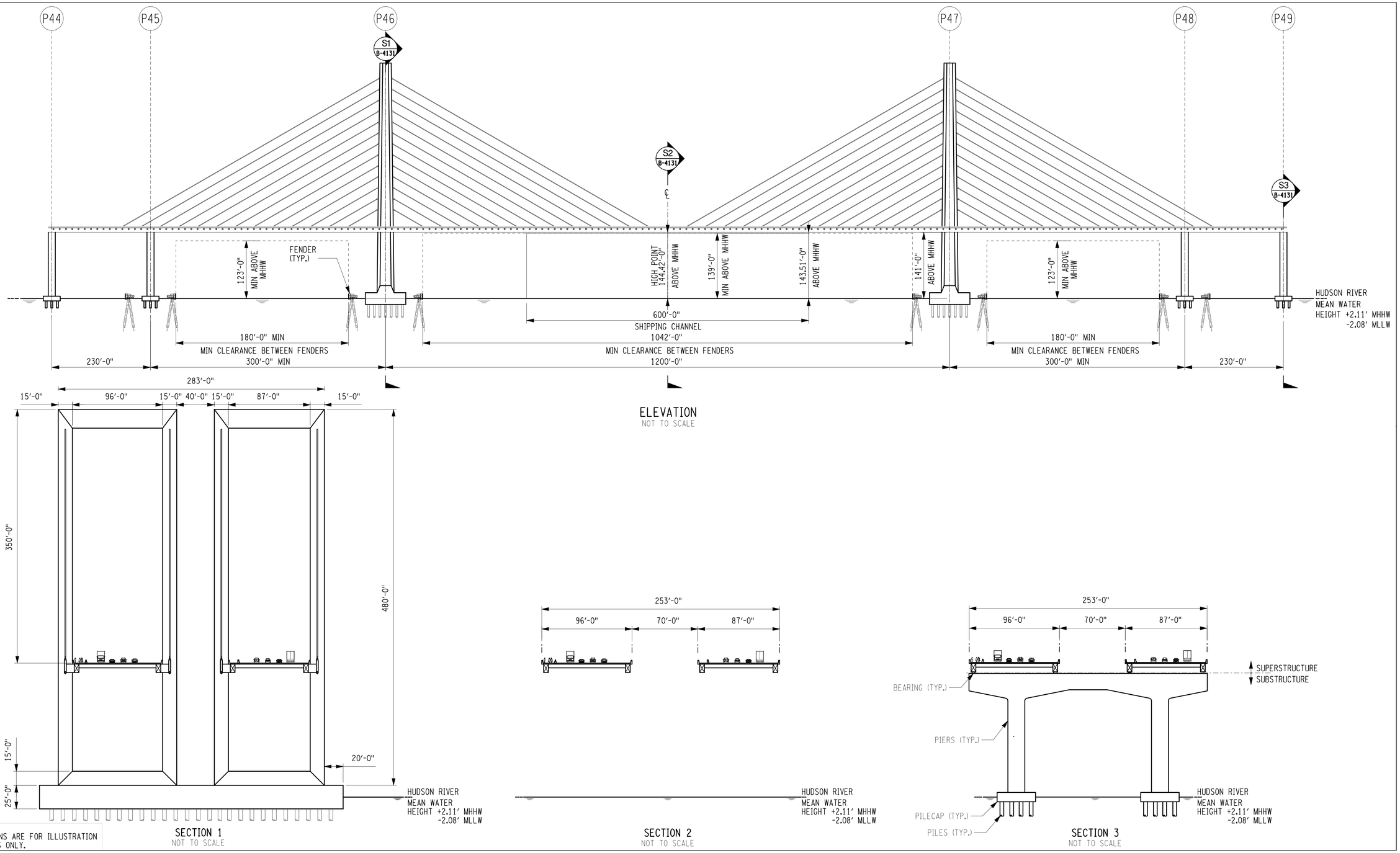
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



ELEVATION
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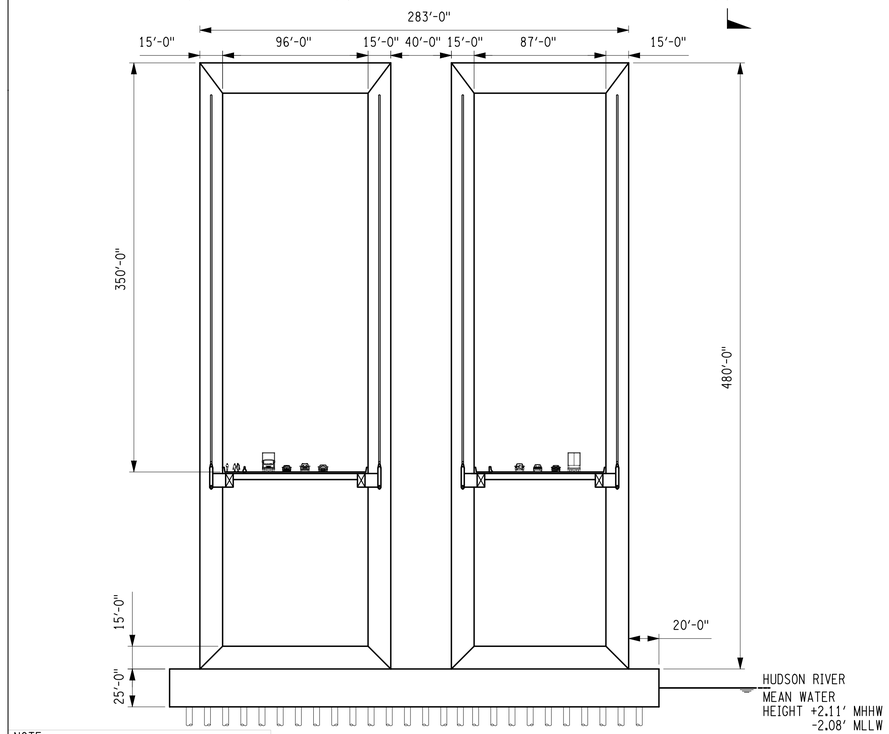

NOTE:
1. DIMENSIONS ARE FOR ILLUSTRATION PURPOSES ONLY.

SECTION 1
NOT TO SCALE

SECTION 2
NOT TO SCALE

SECTION 3
NOT TO SCALE

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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PROJECT

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0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER
217815

BRIDGE CROSSING
MAIN SPAN WITH CABLE STAYED

DRAWING NO. B-4131
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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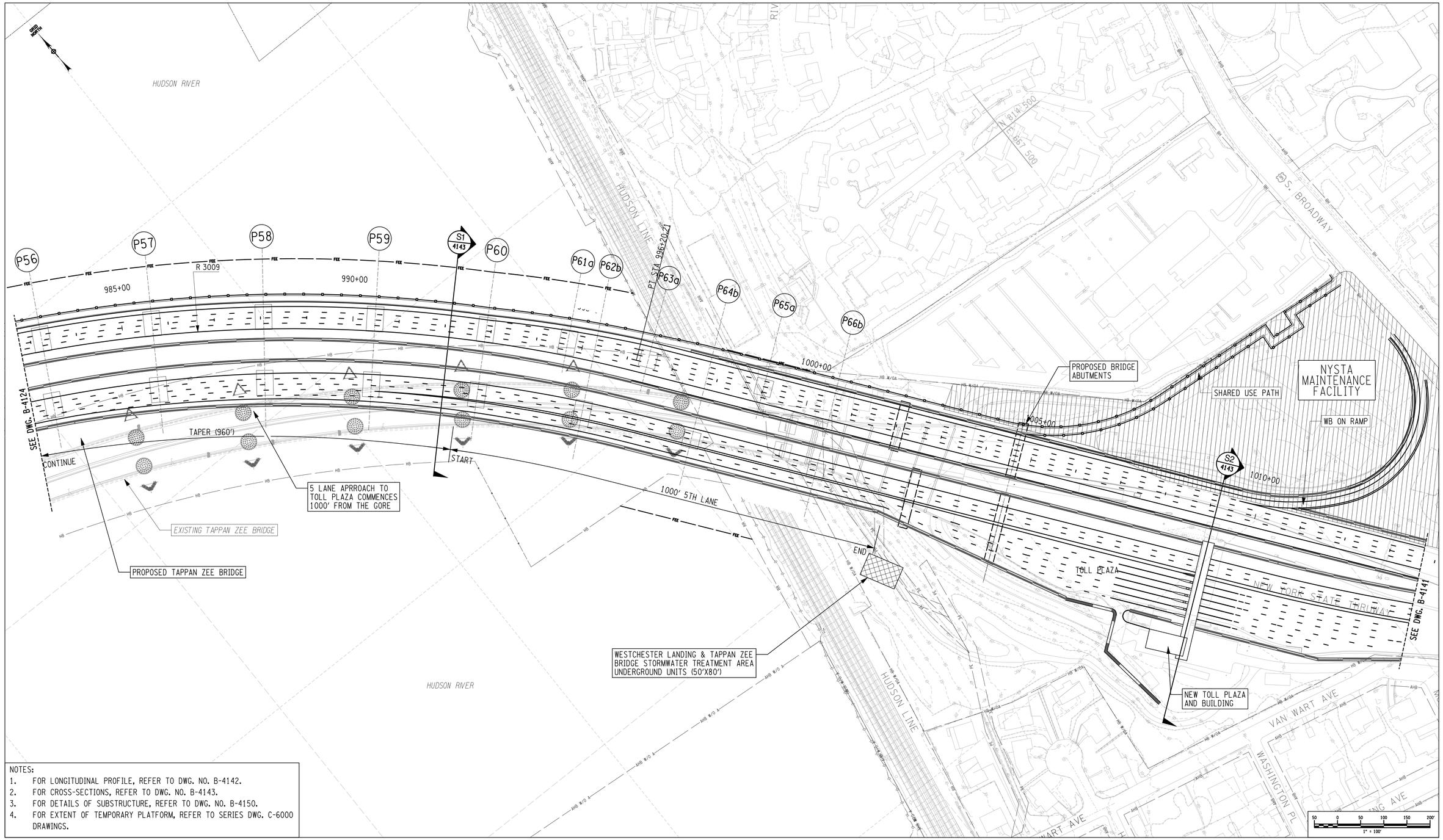
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
DRAWN BY HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4142.
2. FOR CROSS-SECTIONS, REFER TO DWG. NO. B-4143.
3. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. NO. B-4150.
4. FOR EXTENT OF TEMPORARY PLATFORM, REFER TO SERIES DWG. C-6000 DRAWINGS.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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HUDSON RIVER CROSSING
PROJECT

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0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

BRIDGE APPROACH PLAN - SHEET 1 OF 2
WESTCHESTER COUNTY

DRAWING NO. B-4140
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
DRAFTED BY JODY VLKAS CHECKED BY HEMAL PATEL ESTIMATED BY ADAM FINKIN
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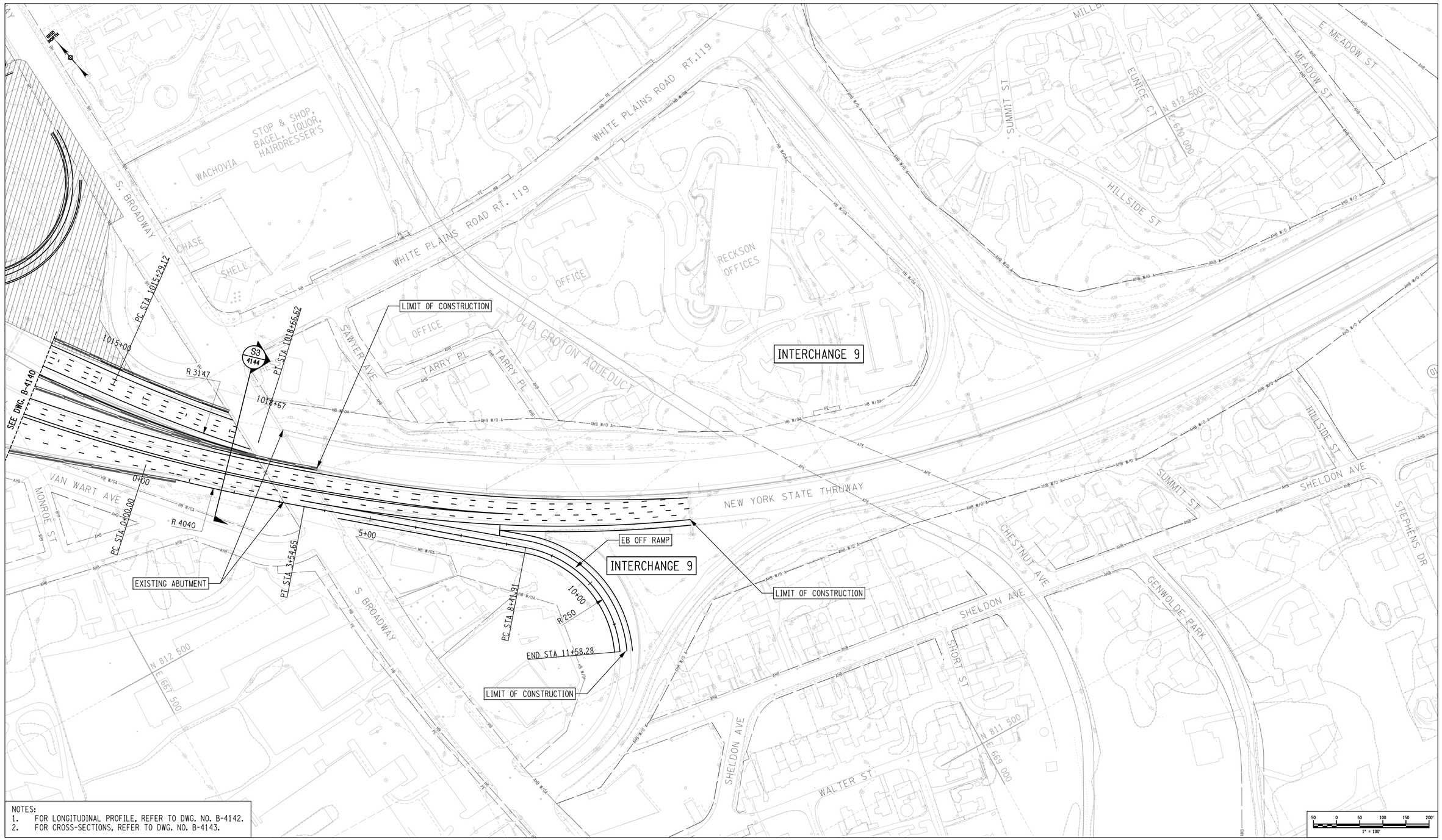

NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4142.
2. FOR CROSS-SECTIONS, REFER TO DWG. NO. B-4143.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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HUDSON RIVER CROSSING
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1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER 217815

BRIDGE APPROACH PLAN - SHEET 2 OF 2
WESTCHESTER COUNTY

DRAWING NO. B-4141
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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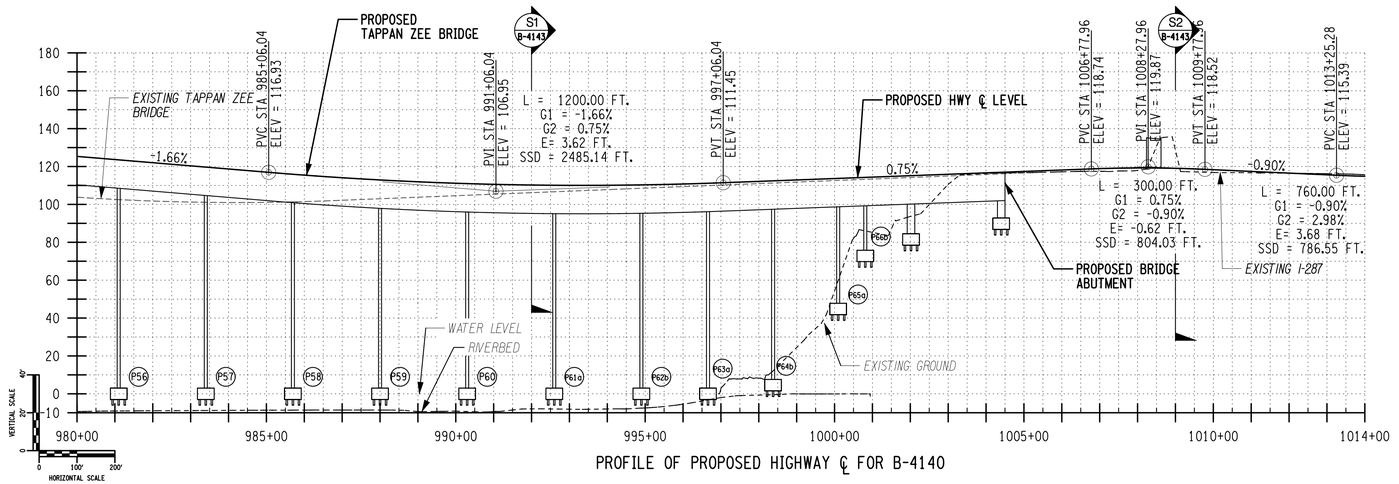
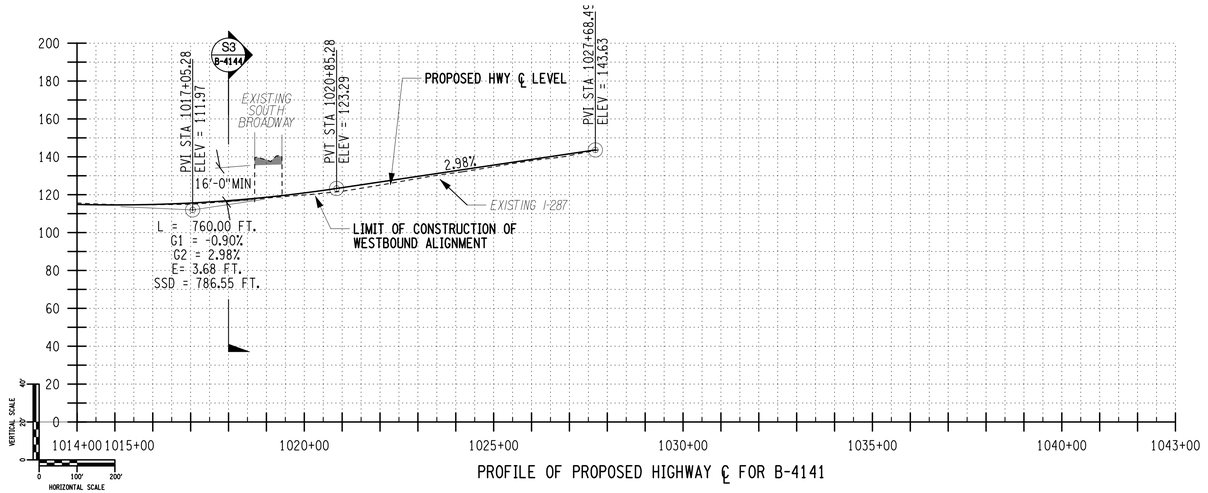
USER = kirby.sicherman

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
DRAFTED BY JODY VUKAS ESTIMATED BY ADAM FINKIN HEMAL PATEL



PROFILE OF PROPOSED HIGHWAY ℄ FOR B-4140



PROFILE OF PROPOSED HIGHWAY ℄ FOR B-4141

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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0	01/18/12	DEIS APPENDIX A ISSUE	JV

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BRIDGE APPROACH PROFILES
WESTCHESTER COUNTY

CONTRACT NUMBER 217815

DRAWING NO. B-4142
SHEET NO.

DOCUMENT STATUS: DEIS - APPENDIX A

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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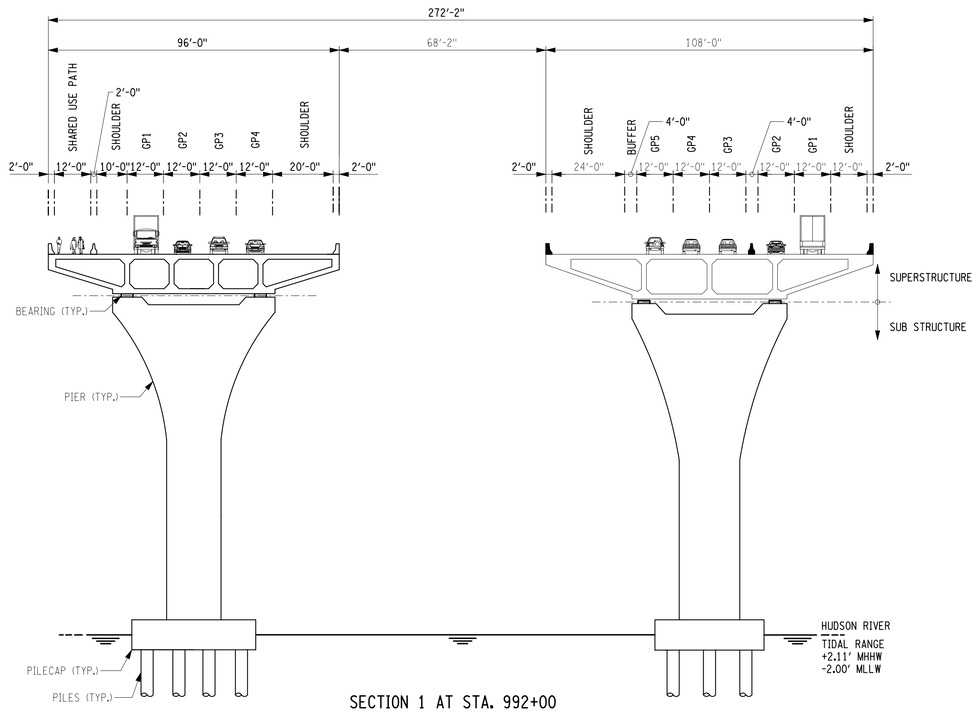
USER = kirby.sicherman

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



SECTION 1 AT STA. 992+00
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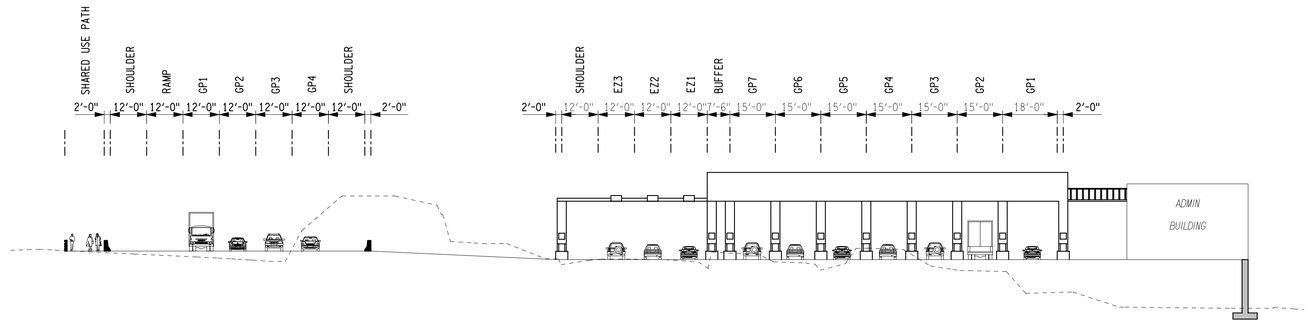

SECTION 2 AT STA. 1009+00
SCALE : 1"=25'-0"

10 0 10 20 30 40 50'
1" = 25'

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER 217815

CROSS SECTIONS - SHEET 1 OF 2
WESTCHESTER COUNTY

DRAWING NO. B-4143
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN CHECKED BY HEMAL PATEL

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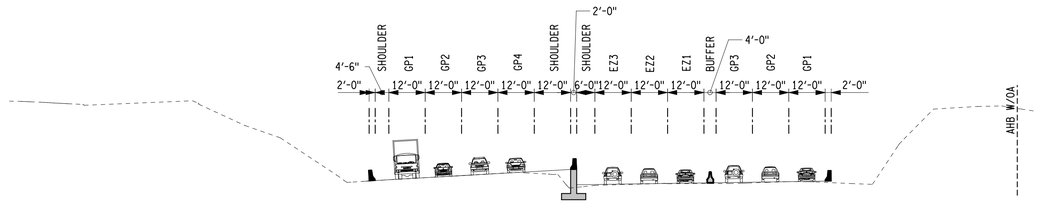

SECTION 3 AT STA. 1018+00
SCALE: 1"=25'-0"

10 0 10 20 30 40 50'
1" = 25'

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

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0	01/18/12	DEIS APPENDIX A ISSUE	JV

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CROSS SECTIONS - SHEET 2 OF 2
WESTCHESTER COUNTY

DRAWING NO. B-4144
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

FILE NAME = J:\GN-Y\13100\13219-00\12 Drawings DEIS\Sheets\Expedited Bridge DEIS\Short Span\B-4144.dgn
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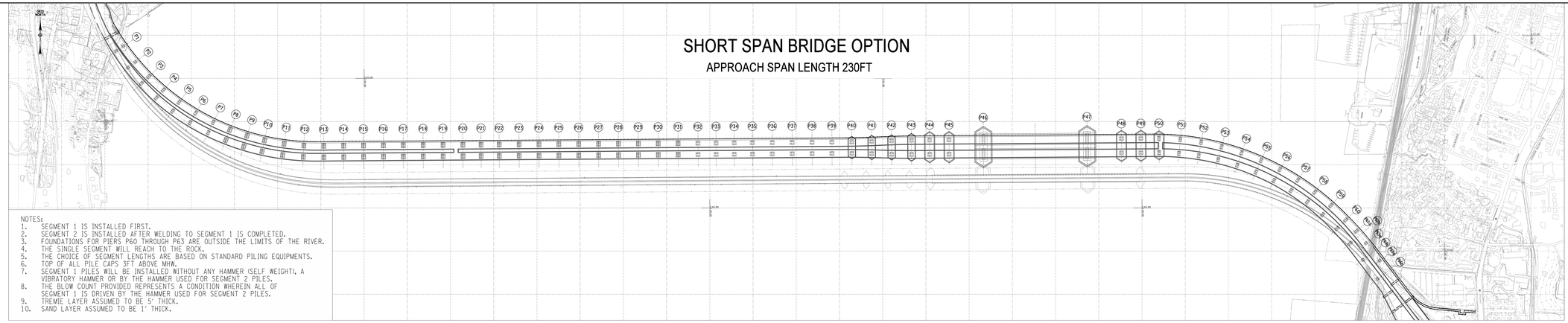
USER = kirby.sicherman

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL

SHORT SPAN BRIDGE OPTION

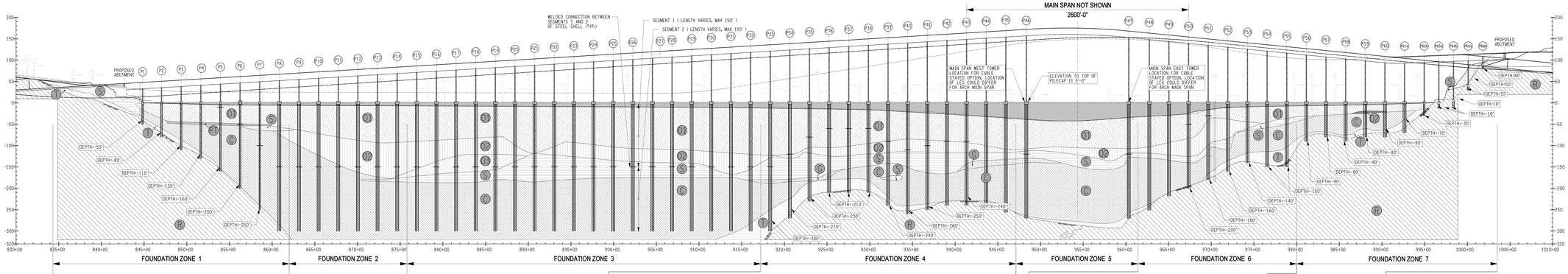
APPROACH SPAN LENGTH 230FT



NOTES:
1. SEGMENT 1 IS INSTALLED FIRST.
2. SEGMENT 2 IS INSTALLED AFTER WELDING TO SEGMENT 1 IS COMPLETED.
3. FOUNDATIONS FOR PIERS P60 THROUGH P63 ARE OUTSIDE THE LIMITS OF THE RIVER.
4. THE SINGLE SEGMENT WILL REACH TO THE ROCK.
5. THE CHOICE OF SEGMENT LENGTHS ARE BASED ON STANDARD PILING EQUIPMENTS.
6. TOP OF ALL PILE CAPS 3FT ABOVE MHW.
7. SEGMENT 1 PILES WILL BE INSTALLED WITHOUT ANY HAMMER (SELF WEIGHT), A VIBRATORY HAMMER OR BY THE HAMMER USED FOR SEGMENT 2 PILES.
8. THE BLOW COUNT PROVIDED REPRESENTS A CONDITION WHEREIN ALL OF SEGMENT 1 IS DRIVEN BY THE HAMMER USED FOR SEGMENT 2 PILES.
9. TREMIE LAYER ASSUMED TO BE 5' THICK.
10. SAND LAYER ASSUMED TO BE 1' THICK.

LEGEND:

- (O1) ORGANIC SILTY CLAY : SOFT DARK GRAY ORGANIC SILTY CLAY, TRACE SHELLS, VEGETATION, WOOD, ROOTS AND PEAT
- (O2) ORGANIC SILTY CLAY WITH TRACES OF SAND : SOFT GRAY ORGANIC SILTY CLAY, TRACE FINE SAND, FINE SAND SEAMS AND PARTINGS, PEAT.
- (O3) ORGANIC SILTY CLAY WITH SOME SAND : MEDIUM GRAY ORGANIC SILTY CLAY, TRACE TO SOME FINE SAND, SILT, TRACE FINE SAND SEAMS OR POCKETS
- (PT) PEAT : BROWN PEAT
- (S) SAND : MEDIUM COMPACT TO VERY COMPACT FINE TO MEDIUM SAND, SOME SILT, TRACE COARSE SAND AND GRAVEL
- (C) GLACIAL VARVED SILT AND CLAY : MEDIUM GRAY CLAY AND SILT, SOME FINE SAND VARVED WITH MEDIUM RED BROWN CLAYEY SILT, STIFF CLAY, FINE AND SILT PARTINGS
- (T) GLACIAL TILL : VERY COMPACT REDDISH GRAY FINE TO COARSE SAND, SOME GRAVEL TRACE ROCK FRAGMENTS, SILT, GRAY BROWN SILTY CLAY LAYERS AND BOULDERS
- (R) ROCK : INTERMEDIATE TO HARD UNWEATHERED TO SLIGHTLY WEATHERED GRANITIC GNEISS OR SANDSTONE, BLOCKY TO CLOSELY JOINTED, WEATHERED TO IRON STAINED JOINTS



FOUNDATIONS 4' - 10' DIA PILES
• SEE NOTE 8

		P1 TO P3		P4 TO P8		P9 TO P14		P15 TO P32		P33 TO P45		MAIN SPAN (P46 AND P47)						P48 TO P51		P52 TO P57		P58 TO P66b
												NORTH LEG			SOUTH LEG							
PILE LAYOUT		6' DIA. PILES		6' DIA. PILES		4' DIA. PILES		4' DIA. PILES		8' DIA. PILES		10' DIA. PILES			10' DIA. PILES			6' DIA. PILES		6' DIA. PILES		
		• TOTAL NO. OF PILES/PILECAP=4 • 2x2 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2		• TOTAL NO. OF PILES/PILECAP=6 • 3x2 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2		• TOTAL NO. OF PILES/PILECAP=20 • 5x4 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2 • PILE PENETRATION LENGTH = 300FT		• TOTAL NO. OF PILES/PILECAP=20 • 5x4 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2 • PILE PENETRATION LENGTH = 300FT		• TOTAL NO. OF PILES/PILECAP=4 • 2x2 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2		• BATTERED PILES ○ VERTICAL PILES • TOTAL NO. OF PILE CAPS=4			• BATTERED PILES ○ VERTICAL PILES • TOTAL NO. OF PILE CAPS=4			• TOTAL NO. OF PILES/PILECAP=6 • 3x2 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2		• TOTAL NO. OF PILES/PILECAP=6 • 3x2 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2		SPREAD FOOTING DIRECTLY RESTING ON ROCK (SEE NOTE 3)
STEEL SHELL THICKNESS		1.5IN		1.5IN		1.0IN		1.0IN		2.0IN		VERTICAL AND BATTERED PILES 2.0IN			VERTICAL AND BATTERED PILES 2.0IN			1.5IN		1.5IN		
TOTAL NO OF PILES		24		60		240		720		88		16			16			72		72		
NO OF ROCK SOCKETS		24 (LENGTH 30ft)		0		0		0		0		16 (LENGTH 70-90 ft)			16 (LENGTH 70-90 ft)			0		0		
SEGMENT 1	DRIVING HAMMER TYPE	BSP HA 40	IHC S-750	BSP HA 40	IHC S-750	JUNTTAN HHK 25S	IHC S-600	JUNTTAN HHK 25S	IHC S-600	BSP HA 40	IHC S-750	BSP HA 40	IHC S-600	IHC S-750	BSP HA 40	IHC S-600	IHC S-750	BSP HA 40	IHC S-750	BSP HA 40	IHC S-750	
	NO OF BLOWS/PILE	1000	600	1800	1200	1100	700	1100	700	900	700	900	1200	700	900	1200	700	1000	600	1600	1000	
	HAMMER ENERGY (k-ft)	347.2	550.8	347.2	550.8	271.2	443.5	271.2	443.5	347.2	550.8	347.2	443.5	550.8	347.2	443.5	550.8	347.2	550.8	347.2	550.8	
SEGMENT 2	DRIVING HAMMER TYPE	SEE NOTE 4		BSP HA 40	IHC S-750	JUNTTAN HHK 25S	IHC S-600	JUNTTAN HHK 25S	IHC S-600	BSP HA 40	IHC S-750	BSP HA 40	IHC S-600	IHC S-750	BSP HA 40	IHC S-600	IHC S-750	BSP HA 40	IHC S-750			
	NO OF BLOWS/PILE			1000	750	10000	3800	10000	3800	3500	2100	3500	4400	2100	3500	4400	2100	700	500	SEE NOTE 4		
	HAMMER ENERGY (k-ft)			347.2	550.8	271.2	443.5	271.2	443.5	347.2	550.8	347.2	443.5	550.8	347.2	443.5	550.8	347.2	550.8			
	PILECAP THICKNESS (ft)	9		9		15		15		12		23			23			9		9		

SCALE 300 0 300 600

REV	DATE	DESCRIPTION	BY
1	01/19/12	DCIS APPENDIX A ISSUE	LB
0	01/18/12	DCIS APPENDIX A ISSUE	LB

REVISIONS

DRAFT FOR DISCUSSION

TAPPAN ZEE BRIDGE / I-287 CORRIDOR PROJECT

ARUP
80 ARGYLE ST THE PARTHENO NEW YORK NY 10036 TELEPHONE 212 229 2600

TITLE OF DRAWING

FOUNDATION DRAWING

SHORT SPAN BRIDGE REPLACEMENT TAPPAN ZEE BRIDGE

New York State Department of Transportation

Thruway Authority

CONTRACT NUMBER	DATE	DRAWING NUMBER
217815	DEC 2011	B-4150

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ALIGNMENT

STYLE	NAME	DESCRIPTION
	AC	CONTROL (CENTERLINE)
	AD_P	DETOUR
	AT_P	TRANSITION CONTROL
BRIDGE		
	BR	RAIL
	BSHT	SHEET PILING
CONTROL		
	CB	BASELINE
	CBPR	BASELINE, PROJECTION
DRAINAGE		
ST	DCP	CULVERT PIPE
ST	DCP_P	CULVERT PIPE (DIR)
	DDG_P	DITCH, GRASS LINED
	DDP_P	DITCH, PAVED INVERT
	DDS_P	DITCH, STONE LINED
	DFL_P	FLOW LINE
	DSSD	SLOTTED DRAIN
ENVIRONMENTAL		
S	EBLHS	BALE, STRAW
	ECT	CURTAIN, TURBIDITY
	EDMC	DAM, COFFER TYPE
	EDMEC_P	DAM, EARTHEN, CHECK
	EDMPC_P	DAM, PREFAB, CHECK
	EDMSC_P	DAM, STONE, CHECK
	EFNS	FENCE, SILT
	EFNSV	FENCE, SILT & VEGETATION
	EFNV	FENCE, VEGETATION
WA	EWAA_P	WETLAND, ADJACENT AREA
FW	EWF	WETLAND, FEDERAL
FW SW	EWFS	WETLAND, FEDERAL AND STATE
SW	EWM	WETLAND, MITIGATION AREA
SW	EWS	WETLAND, STATE

LANDSCAPE

STYLE	NAME	DESCRIPTION
	LABL	AREA, BRUSH LINE
	LAHR	AREA, HEDGE ROW
	LAPB	AREA, PLANTING BED
	LAWA	AREA, WOODED AREA OUTLINE
	LAWE	AREA, WATERS EDGE
	LCUT_P	CUT LIMIT
	LFILL_P	FILL LIMIT
	LFNC	FENCE
	LTRC	TREE ROW, CONIFEROUS
	LTRD	TREE ROW, DECIDUOUS
	LWH	WALL, H PILE
	LWR	WALL, RETAINING
	LWS	WALL, STONE

ROW MAPPING

	MDL	DEED LINE
PE	MEE	EASEMENT, EXISTING
PE	MEP_P	EASEMENT, PERMANENT
APE	MEPA_P	EASEMENT, PERMANENT, APPROX.
TE	MET_P	EASEMENT, TEMPORARY
ATE	META_P	EASEMENT, TEMPORARY, APPROX.
FEE	MF_P	FEE ACQUISITION, W/ ACCESS
AFEE	MFA_P	FEE ACQUISITION, APPROXIMATE
	MFS_P	FEE ACQUISITION, SHAPE
FEE W/OA	MFWOA_P	FEE ACQUISITION, W/O ACCESS
	MHA	HISTORICAL, ACQUISITION
HB	MHB	HIGHWAY BOUNDARY
AHB	MHBA	HIGHWAY BOUNDARY, APPROX.
HWBW	MHBW	HWY BOUNDARY, FACE OF WALL
HB W/OA	MHBWOA	HIGHWAY BOUNDARY, W/O ACCESS
	MJC	JURISDICTION, CITY
	MJCY	JURISDICTION, COUNTY
	MJHD	JURISDICTION, HISTORIC DISTRICT
	MJLL	JURIS., %GREAT, MILITARY% LOT LINE
	MJN	JURISDICTION, NATION
	MJPB	JURISDICTION, PUBLIC LANDS
	MJS	JURISDICTION, STATE
	MJT	JURISDICTION, TOWN
	MJV	JURISDICTION, VILLAGE
	MPL	PROPERTY LOT LINE
	MPLA	PROPERTY LOT LINE, APPROXIMATE
	MSL	SUB LOT LINE

ROADWAY

STYLE	NAME	DESCRIPTION
CZ	RCZ_P	CLEAR ZONE
	RG	GUIDE RAIL, MISCELLANEOUS
	RGB	GUIDE RAIL, BOX BEAM
	RGBM	GUIDE RAIL, BOX BEAM, MEDIAN
	RGC	GUIDE RAIL, CABLE
	RGCB	GUIDE RAIL, CONCRETE BARRIER
	RGP_P	GUIDE POST
	RGW	GUIDE RAIL, W BEAM
	RGWM	GUIDE RAIL, W BEAM, MEDIAN
	RPB	PARKING BUMPER
	RRC	RAIL ROAD, CATENARY
	RRER	RAIL ROAD, 3RD RAIL
RRPLS_P	RRPLS_P	RAIL, PHOTO, LARGE SCALE
RRPSS	RRPSS	RAIL, PHOTO, SMALL SCALE
	RRS	RUMBLE STRIP
RRSLS_P	RRSLS_P	RAIL SURVEY, LARGE SCALE
RRSSS	RRSSS	RAIL SURVEY, SMALL SCALE

SIGNS

	SBLB	BILLBOARDS
	SM	MULTIPLE POST
	SSO	STRUCTURE, OVERHEAD
	SSOC	STRUCTURE, OVHD. CANTILEVER

STRIPING

	STB+	BROKEN LINE
	STDB+	DOUBLE BROKEN LINE
	STDL+	DOTTED LINE LONG
	STDS+	DOTTED LINE SHORT
	STFB+	FULL BARRIER LINE
	STH+	HATCH LINE
	STPB+	PARTIAL BARRIER LINE
	STRCT	ROUNDABOUT, CAT TRACKS
	STRYL	ROUNDABOUT, YIELD LINE
	STSB	STOP BAR
	STSE+	SOLID, EDGE
	STXL+	X WALK, LADDER LINE
		+ = W (WHITE) OR Y (YELLOW)

TRAFFIC CONTROL

	TCSW	SIGNAL, SPAN WIRE

TRAFFIC WORK ZONE

	TWZBT_P	BARRIER, TEMPORARY
	TWZBTWL_P	BARRIER, TEMPORARY, W/ WARNING LIGHTS
	TWZCD_P	CHANNELIZING DEVICE
	TWZPMRC_P	PAVEMENT MARKING REMOVAL OR COVERING

UTILITIES

STYLE	NAME	DESCRIPTION
C	UC	CONDUIT, UNDERGROUND
UCH	UCH	CONDUIT, HANGING
OC	UCO	CONDUIT, OVERHEAD
E	UE	ELECTRIC LINE, UNDERGROUND
UEH	UEH	ELECTRIC LINE, HANGING
OE	UEO	ELECTRIC LINE, OVERHEAD
OET	UETO	ELECTRIC TRANSMISSION, OVERHEAD
	USSS	ELECTRIC, SUBSTATIONS
FO	UFO	FIBER OPTIC, UNDERGROUND
UFOH	UFOH	FIBER OPTIC, HANGING
OFO	UFOO	FIBER OPTIC, OVERHEAD
G	UG	GAS, UNDERGROUND
UGH	UGH	GAS, HANGING
OG	UGO	GAS, OVERHEAD
IC	UIC	INFORM CABLE, UNDERGROUND
UICH	UICH	INFORM CABLE, HANGING
O	UO	OIL LINE, UNDERGROUND
UOH	UOH	OIL LINE, HANGING
	UPBP	POLE, BRACE, PUSH BRACE
	UPGW	POLE, GUY WIRE
SA	USA	SANITARY SEWER, UNDERGROUND
USAH	USAH	SANITARY SEWER, HANGING
SAF	USAF	SANITARY SEWER, FORCE MAIN, UGND
SAFH	USAFH	SANITARY SEWER, FORCE MAIN, HANG
T	UT	TELEPHONE, UNDERGROUND
UTH	UTH	TELEPHONE, HANGING
OT	UTO	TELEPHONE, OVERHEAD
CTV	UTV	CABLE TV, UNDERGROUND
UTVH	UTVH	CABLE TV, HANGING
OCTV	UTVO	CABLE TV, OVERHEAD
UU	UUU	UNKNOWN, UNDERGROUND
UUH	UUH	UNKNOWN, HANGING
OUU	UUO	UNKNOWN, OVERHEAD
W	UW	WATER LINE, UNDERGROUND
UWH	UWH	WATER LINE, HANGING
OW	UWO	WATER LINE, OVERHEAD

B/HWY SERIES DRAWINGS - ADDITIONAL LEGENDS

	CRT AT GRADE
	CRT UNDERGROUND
	PEDESTRIAN CROSSING
	PROPOSED RETAINING WALL
	PROPOSED NOISE BARRIER
	PROPOSED JERSEY BARRIER
	IMPACTED PROPERTY
CRT	COMMUTER RAIL TRANSIT
BRT	BUS RAPID TRANSIT
HOV	HIGH OCCUPANCY VEHICLES
GP	GENERAL PURPOSE LANES
HB	PROPOSED HIGHWAY BOUNDARY

ALIGNMENT

CELL	NAME	DESCRIPTION
	ACC	CENTER OF CURVATURE
	ACOGO	COGO
	ACS	CURVE TO SPIRAL
	ADPL_P	DETOUR, POINT OF INTERSECT.
	ADPL_P	DETOUR, POINT ON LINE
	AEQN	EQUATION
	AEQNAHD	EQUATION AHEAD
	AEQNBK	EQUATION BACK
	AEVT	EVENT STATION
	APC	POINT OF CURVATURE
	APCC	POINT OF COMPOUND CURVATURE
	API	POINT OF INTERSECTION
	APOB	POINT OF BEGINNING
	APOC	POINT OF CURVATURE
	APOE	POINT OF END
	APOL	POINT ON LINE
	APOS	POINT ON SPIRAL
	APOT	POINT ON TANGENT
	APOVC	POINT ON VERTICAL CURVE
	APOVT	POINT ON VERTICAL TANGENT
	APORC	POINT ON REVERSE CURVE
	APT	POINT OF TANGENCY
	APVC	POINT OF VERTICAL CURVATURE
	APVCC	POINT OF VERT. CMPND CURVE
	APVI	POINT OF VERT. INTERSECTION
	APVRC	POINT OF VERT. REVERSE CURVE
	APVT	POINT OF VERTICAL TANGENCY
	ASC	SPIRAL TO CURVE
	ASPI	SPIRAL POINT OF INTERSECTION
	ASTS	SPIRAL TO SPIRAL
	AST	SPIRAL TO TANGENT
	ATS	TANGENT TO SPIRAL
	AVEVT	VERTICAL EVENT POINT
	AVHIGH	VERTICAL HIGH POINT
	AVLOW	VERTICAL LOW POINT

BRIDGE

	BSC	BRIDGE, SCUPPER

CONTROL

	CBP	BASELINE, POINT
	CBPOL	BASELINE, POINT ON LINE
	CBSP	BASELINE, SPUR POINT
	CBTP	BASELINE, TIE POINT
	CPBM	BENCHMARK
	CPH	POINT, HORIZ. PHOTOGRAMMETRY
	CPSM	POINT, SURVEY MARKER, PERM.
	CPSV	POINT, VERT., PHOTOGRAMMETRY

CELL	NAME	DESCRIPTION
	DINV	INVERT
	DS	STRUCTURE, RECTANGULAR
	DSI	STRUCTURE, INVERT
	DSM	STRUCTURE, MANHOLE
DSMTXX_P	DSMTXX_P	STRUCTURE, MANHOLE, TYPE "XX" "XX" = 48, 60, 72, 96
	DSR	STRUCTURE, ROUND
DST"X"CB P	DST"X"CB P	STRUCTURE, RECT., WITH CURB TYPE "X" "X" = F, G, N, O, P, R
DST"X" P	DST"X" P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U

ENVIRONMENTAL

CELL	NAME	DESCRIPTION
CULV	EIOP_P	STR., INLET, OUTLET PROT.
GB	EIPGB_P	STR., INLET PROT., GRAVEL BAG
HAYS	EIPHS_P	STR., INLET PROT., HAY/STRAW
PREFB	EIPP_P	STR., INLET PROT., PREFAB.
SF	EIPSF_P	STR., INLET PROT., SILT FENCE
	ERCB	RISER, CONCRETE BOX
	ETRS_P	TRAP, SEDIMENT
	EWFG	WETLAND FLAG

GEOTECHNICAL

	GDH	DRILL HOLE

LANDSCAPE

	LELS	ELEVATION, SPOT
	LFP	FLAG POLE
	LMB	MAILBOX
	LPB	PAPER BOX
	LPST	POST, SINGLE
	LRB	ROCK, BOULDER
	LSHC	SHRUB, CONIFEROUS
	LSHD	SHRUB, DECIDUOUS
	LTC	TREE, CONIFEROUS
	LTD	TREE, DECIDUOUS
	LTS	TREE, STUMP
	LTW_P	TREE, WELL OR WALL
	LUKP	UNKNOWN POINT

ITS

CELL	NAME	DESCRIPTION
	IANT_P	ANTENNAS
AVI	IASCTS	ACCOU. SPEED/COUNT SNSR.S
	ICABPAD	CABINET & PAD
	ICCTV	CCTV SITE
	ICDPD	CDPD TRANSCEIVER
	ICELLT	CELL PHONE TOWER
	ICJB	CONDUIT JACK OR BORING
	ICNTLCAB	CONTROLLER CABINET
	ICPB	COMMUNICATION PULL BOX
	ICTD	CONDUIT TURNING DOWN
	ICTU	CONDUIT TURNING UP
	ICVTRT	COMM. VEH. ROAD TRANSCEIVER
	IDEFAULT	DEFAULT
EZ	IEZR	E-ZPASS READER
EZ-T	IEZTR	TRANSMITTAL READER
XC	IFOXCAB	FIBER OPTIC X-CONNECT CABINET
	IFUSSPL	FUSION SPLICE
HARADV	IHARADV	HAR ADVISORY SIGN
	IHARST	HAR SITE
ILC	ILC	LOAD CENTER
	IMECSPL	MECHANICAL SPLICE
PM	IMSCS	PORT. SPEED & COUNT SENSOR
M	IMSCTS	MICRO SPEED & COUNT SENSOR
MW	IMT	MICROWAVE TRANSCEIVER
VMS	IOVHVMS	PERM. OVERHEAD VMS
PA	IPASCS	PORT. ACCOU. SPD & CNT. SENSOR
	IPEDS	PEDESTRIAN SIGNAL HEAD
	IPSS	PAVEMENT SURFACE SENSOR
PVMS	IPVMS	PERM. VMS
	IRM	RAMP METER
RWIS	IRWIS	ROAD WEATHER INFO. SENSOR
	ISP	SOLAR PANEL
	ISST	SPREAD SPECT. TRANSCEIVER
TK	ITDB	TELEPHONE DEMARCATION BLK
TP	ITP	SUBSURFACE TEMP. PROBE
	IVTRT	VEHICLE TO ROWY TRANSCEIVER
WIM	IWIM	WEIGHT IN MOTION DETECTOR
	IWVR	WIRELESS VIDEO REPEATER
	IWVRC	WIRELESS VIDEO RECEIVER
	IWVTT	WIRELESS VIDEO TRANSMITTER

ROW MAPPING

CELL	NAME	DESCRIPTION
	MDL1P	DEED LINE, TYPE 1
	MDL2P	DEED LINE, TYPE 2
	MDL3P	DEED LINE, TYPE 3
	MDL4P	DEED LINE, TYPE 4
	MDL5P	DEED LINE, TYPE 5
	MEEP	EASEMENT, EXISTING
	MEPAP_P	EASEMENT, PERM., APPROX.
	MEPP_P	EASEMENT, PERM., BACK LINE
	MEPSP_P	EASEMENT, PERM., SHAPE
	MFAP_P	FEE ACQUISITION, APPROX.
	MFP_P	FEE ACQUISITION, BACK LINE
	MFSP_P	FEE ACQUISITION, SHAPE
	MHBAP	HIGHWAY BNDRY., APPROX.
	MHBCP	HISTORICAL, BLDG. CORNERS
	MHBP	HIGHWAY BNDRY, PT.
	MJCP	PT., JURIS. CITY
	MPBC	PT., BUILDING CORNER
	MPCC	PT., CROSS CUT
	MPDH	PT., DRILL HOLE
	MPF	PT., FENCE LOCATION
	MPIP	PT., IRON PIPE
	MPIR	PT., IRON ROD
	MPM	PT., MONUMENT
	MPMW	PT., MONUMENT, MISC.
	MPN	PT., NAIL
	MPRS	PT., RAILROAD SPIKE
	MPSP	PT., SPIKE
	MPST	PT., STAKE
	MPTW	PT., TREE W/ WIRE
	MPWL	PT., WALL LOCATION

ROW ACQUISITION

CELL	NAME	DESCRIPTION
FEE	MFS_P_T	FEE ACQUISITION
FEE	MEPS_P_T	EASEMENT, PERMANENT
TE	METS_P_T	EASEMENT, TEMPORARY
TE	METS_P_T	OCCUPANCY, TEMPORARY
FEE W/OA	MFS_P_T	FEE ACQUISITION W/O ACCESS

ROADWAY

	RES P	ELEVATION, SPOT
	RGA	GUIDE RAIL, ANCHOR
	RGP	GUIDE POST, SINGLE
HP	RHP	HIGH POINT
LP	RLP	LOW POINT
	BRT	BUS RAPID TRANSIT

SIGNS

CELL	NAME	DESCRIPTION
	S	SINGLE POST
	S P	SINGLE POST, PROPOSED
	SB P	BACK TO BACK, PROPOSED
	SDEL	DELINEATORS
SPM	SPM	PARKING METER
SRM	SRM	REFERENCE MARKERS
	SRSC3	SHLD, CTY, 123 DIG.
	SRSC4	SHLD, CTY, 4 DIG.
	SRSCT2	SHLD, CTY TOUR, 1-2 DIG.
	SRSCT4	SHLD, CTY TOUR, 3-4 DIG.
	SRSI	SHLD, INTERSTATE
	SRSN2	SHLD, NATIONAL, 2 DIG.
	SRSN3	SHLD, NATIONAL, 3 DIG.
	SRSS2	SHLD, STATE, 2 DIG.
	SRSS3	SHLD, STATE, 3 DIG.
	SRSS4	SHLD, STATE, 4 DIG.

TRAFFIC CONTROL

CELL	NAME	DESCRIPTION
	TCBJ	BOX, JUNCTION
	TCBP	BOX, PULL BOX
	TCBS	BOX, SPLICE
	TCMC	MICROCOMPUTER CABINET
	TCPP	PED POLE
	TCSH	SIGNAL HEADS
	TCSP	SIGNAL POLE

TRAFFIC WORK ZONE

CELL	NAME	DESCRIPTION
	TWZAP_P	ARROW PANEL
	TWZAPC_P	ARROW PANEL, CAUTION MODE
	TWZAPT_P	ARROW PANEL, TRAILER OR SUPPORT
	TWZBCD_P	BARRICADE (TYPE III)
	TWZCMS_P	CHANGEABLE MESSAGE SIGN (PVMS)
	TWZFLG_P	FLAGGER
	TWZFT_P	FLAG TREE
	TWZIA_P	IMPACT ATTENUATOR / CRASH CUSHION (TEMPORARY)
	TWZLIM_P	LUMINAIRE (TEMPORARY)
	TWZSDT_P	SYMBOL, DIRECTION OF TRAFFIC
	TWZSDTD_P	SYMBOL, DIRECTION OF TEMPORARY TRAFFIC DETOUR
	TWZSGN_P	SIGN (TEMPORARY)
	TWZSIG_P	SIGNAL, TRAFFIC OR PEDESTRIAN (TEMPORARY)
	TWZWL_P	WARNING LIGHT
	TWZWV_P	WORK VEHICLE
	TWZWVA_P	WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR

UTILITIES

CELL	NAME	DESCRIPTION
	UEB	ELECTRIC, BOX
E	UEM	ELECTRIC, METER
	UEMH	ELECTRIC, MANHOLE
	UEPT	ELECTRIC, POLE, TRANS.
	UGM	GAS, METER
	UGMH	GAS, MANHOLE
	UGLM	GAS, LINE MARKER
FM	UGP	GAS/FUEL PUMP
	UGV	GAS, VALVE
	UGVT	GAS, VENT
	ULP	LIGHTING, POLE
	ULPM	LIGHTING, POLE, MEDIAN
	ULPP	LIGHTING, POLE, PED.
	UMFC	MISC. FILLER CAP
	UOLM	OIL, LINE MARKER
	UP	POLE, WITH UTILITY
	UPD	POLE, DEAD (NO UTILITY)
	UPL	POLE, WITH LIGHT
S	USMH	SANITARY SEWER MANHOLE
	UTB	TELEPHONE, BOOTH
	UTLM	TELEPHONE, LINE MARKER
	UTMH	TELEPHONE, MANHOLE
	UTVLM	CABLE TV, LINE MARKER
	UTVPB	CABLE TV, PULL BOX
	UUB	UNKNOWN, BOX
	UUJB	UNKNOWN, JUNCTION BOX
	UUMH	UNKNOWN, MANHOLE
	UUPB	UNKNOWN, PULL BOX
	UUVL	UNKNOWN, VALVE
	UUVT	UNKNOWN, VENT
	UUW	UNKNOWN, WELL
	UWFH	WATER, FIRE HYDRANT
	UWM	WATER, METER
	UWMH	WATER, MANHOLE
	UWV	WATER, VALVE
	UWW	WATER, WELL

NOTES:
1. THE LEGEND ILLUSTRATES MAPPING FEATURES (EXISTING AND PROPOSED).
2. FEATURES ARE SHOWN AS EITHER LINEAR (ROADWAY GUIDERAIL, ROADWAY SIDEWALK, UTILITY LINES, ETC.) OR POINT (SIGN, UTILITY POLE, ETC.).
3. FEATURES SHOWN ON THE LEGEND AS EXISTING FEATURES ALSO HAVE CORRESPONDING PROPOSED FEATURES.
4. MAPPING FEATURES NOT INCLUDED ON THE LEGEND SHEET DO NOT HAVE A UNIQUE SYMBOLOGY (SUCH AS THE PAVEMENT EDGE, PAVEMENT EDGE OF TRAVEL WAY) AND SHOULD BE LABELED ON THE PLANS.
5. FEATURES SHOWN AT THE HEAVIER WEIGHT ARE PROPOSED ONLY AND DO NOT HAVE CORRESPONDING EXISTING FEATURES.

SHORT APPROACH SPAN - BRIDGE REPLACEMENT

ARUP
Arup USA Inc.
77 Water Street
New York, NY 10005
Tel (212) 896 3000
www.arup.com

Thruway Authority

TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

LEGEND

CONTRACT NUMBER
217815

DRAWING NO. B-4199
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

FILE NAME = J:\DN-Y\131000\131219-00\12 Drawings DEIS\Sheets\Expedited Bridge DEIS\Short Span\B-4199.dgn
DATE/TIME = 1/17/2012 6:30:51 PM
USER = kirby.sicherman
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL

Appendix A: Project Planning and Development

A-3 Project Plans-Long Span Option

TAPPAN ZEE HUDSON RIVER CROSSING PROJECT
ENVIRONMENTAL REVIEW

JAN 18, 2012 LONG SPAN BRIDGE

DEIS APPENDIX A ISSUE

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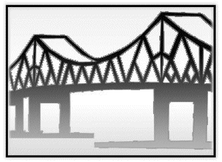
B-4240 TO B-4244 WESTCHESTER LANDING BRIDGE APPROACH
B-4250 BRIDGE FOUNDATIONS
B-4299 LEGENDS



ARUP

Thruway Authority

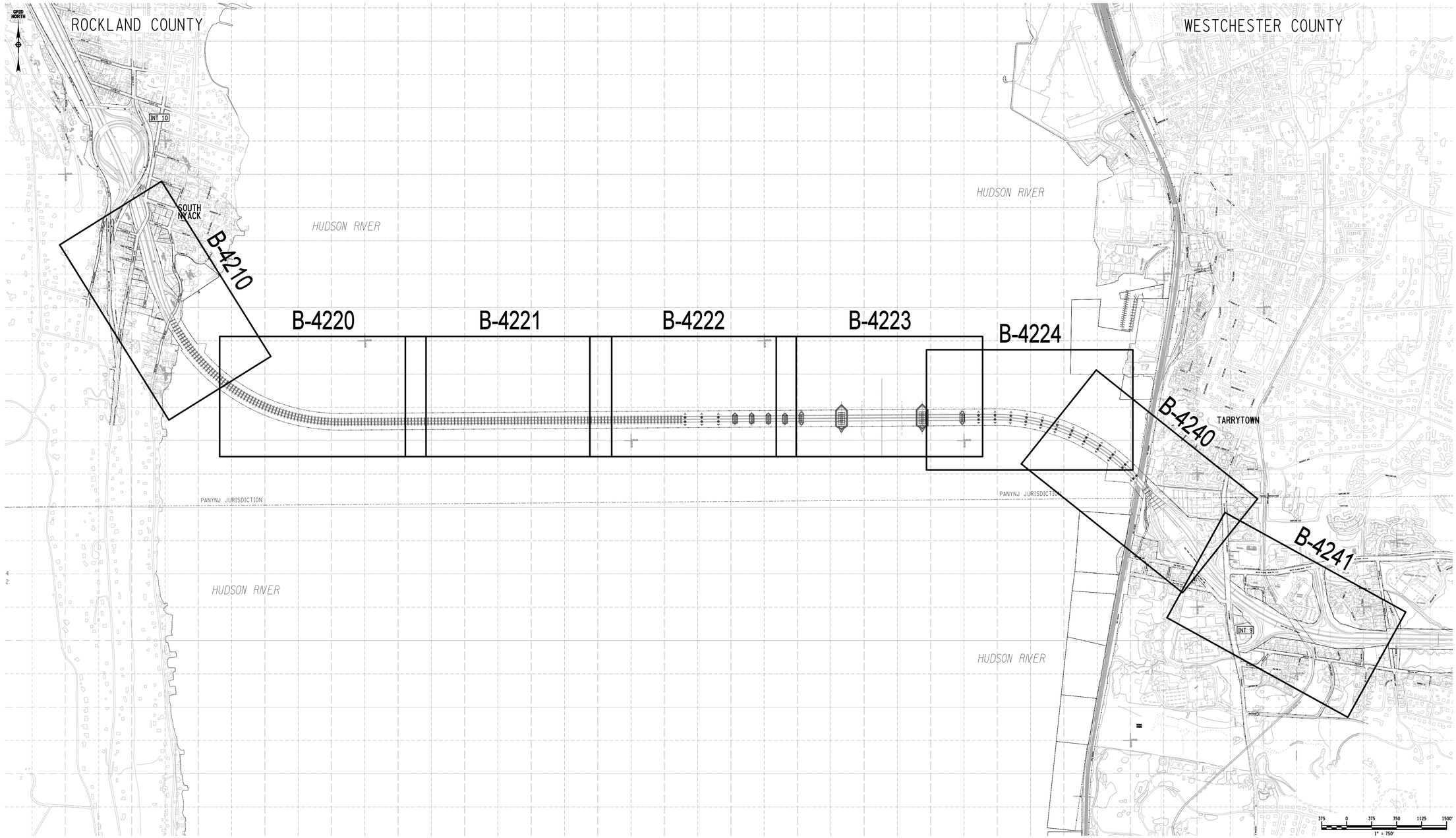
New York State
Department of Transportation

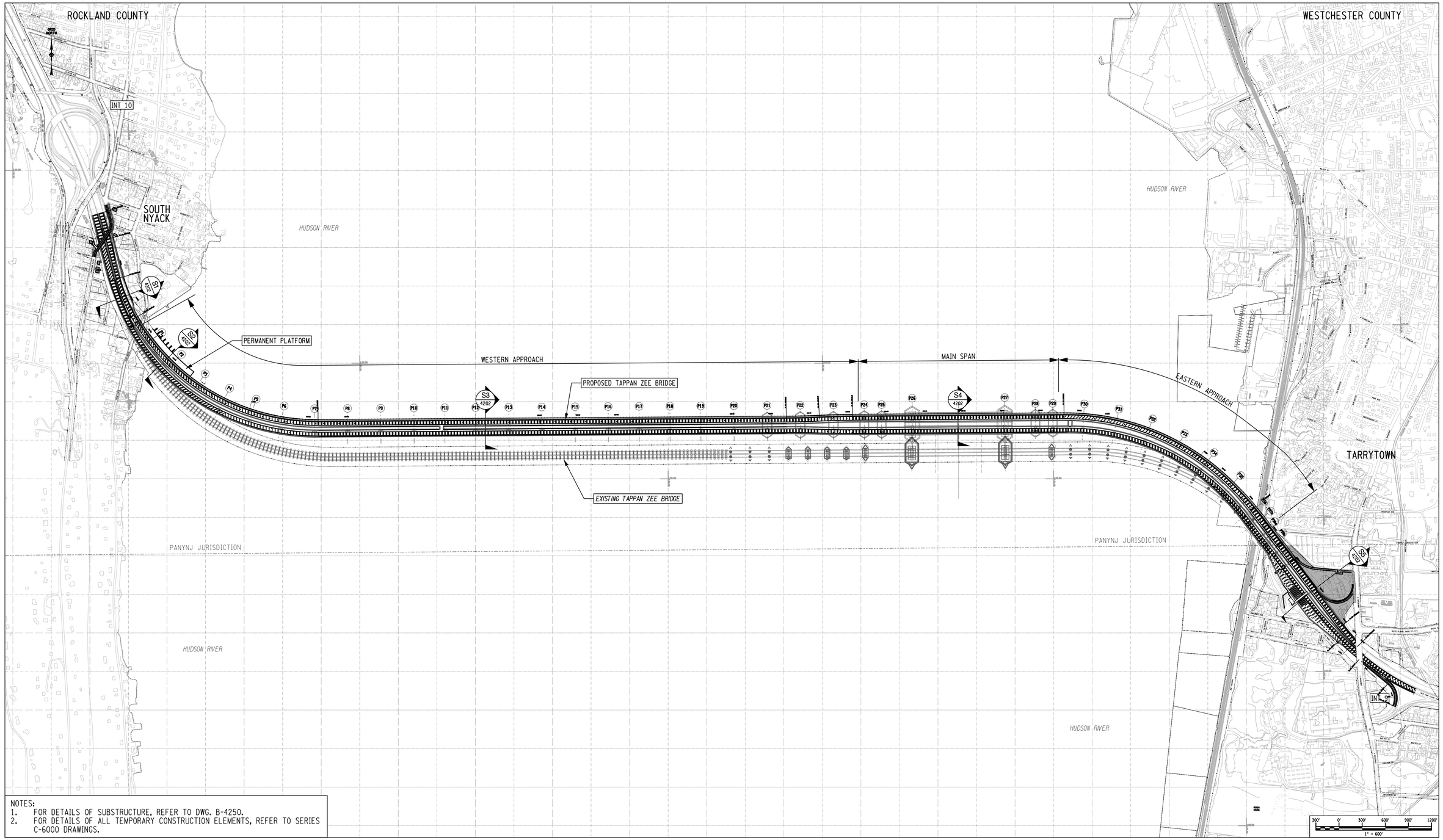
LONG APPROACH SPAN - BRIDGE REPLACEMENT
DRAWING LIST

DRAWING NUMBER	DRAWING NAME	CURRENT STATUS	SCALE
OVERALL BRIDGE CROSSING			
B-4200	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING PLAN	DEIS APPENDIX A - FINAL ISSUE	1"=600'-0"
B-4201	LONG APPROACH SPAN - BRIDGE REPLACEMENT - TYPICAL CROSS SECTION AND PROFILE	DEIS APPENDIX A - FINAL ISSUE	1"=500'-0"
B-4202	LONG APPROACH SPAN - BRIDGE REPLACEMENT - TYPICAL CROSS SECTIONS	DEIS APPENDIX A - FINAL ISSUE	1"=50'-0"
ROCKLAND COUNTY - BRIDGE APPROACH			
B-4210	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE APPROACH PLAN - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
B-4212	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE APPROACH PROFILES - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=200'-0"
B-4213	LONG APPROACH SPAN - BRIDGE REPLACEMENT - CROSS SECTIONS - SHEET 1 OF 2 - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=25'-0"
B-4214	LONG APPROACH SPAN - BRIDGE REPLACEMENT - CROSS SECTIONS - SHEET 2 OF 2 - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=25'-0"
B-4215	LONG APPROACH SPAN - BRIDGE REPLACEMENT - MAINTENANCE RAMP PLAN - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=50'-0"
B-4216	LONG APPROACH SPAN - BRIDGE REPLACEMENT - MAINTENANCE RAMP PROFILES - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
B-4217	LONG APPROACH SPAN - BRIDGE REPLACEMENT - SOUTH BROADWAY BRIDGE - PLAN & PROFILE - ROCKLAND COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=50'-0"
BRIDGE CROSSING			
B-4220	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING PLAN - SHEET 1 OF 5	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
B-4221	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING PLAN - SHEET 2 OF 5	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
B-4222	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING PLAN - SHEET 3 OF 5	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
B-4223	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING PLAN - SHEET 4 OF 5	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
B-4224	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING PLAN - SHEET 5 OF 5	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
B-4225	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING PROFILES - SHEET 1 OF 3	DEIS APPENDIX A - FINAL ISSUE	1"=200'-0"
B-4226	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING PROFILES - SHEET 2 OF 3	DEIS APPENDIX A - FINAL ISSUE	1"=200'-0"
B-4227	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING PROFILES - SHEET 3 OF 3	DEIS APPENDIX A - FINAL ISSUE	1"=200'-0"
B-4230	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING - MAIN SPAN WITH ARCH	DEIS APPENDIX A - FINAL ISSUE	N.T.S.
B-4231	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE CROSSING - MAIN SPAN WITH CABLE STAYED	DEIS APPENDIX A - FINAL ISSUE	N.T.S.
WESTCHESTER COUNTY - BRIDGE APPROACH			
B-4240	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE APPROACH PLAN - SHEET 1 OF 2 - WESTCHESTER COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
B-4241	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE APPROACH PLAN - SHEET 2 OF 2 - WESTCHESTER COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=100'-0"
B-4242	LONG APPROACH SPAN - BRIDGE REPLACEMENT - BRIDGE APPROACH PROFILES - WESTCHESTER COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=200'-0"
B-4243	LONG APPROACH SPAN - BRIDGE REPLACEMENT - CROSS SECTIONS - SHEET 1 OF 2 - WESTCHESTER COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=25'-0"
B-4244	LONG APPROACH SPAN - BRIDGE REPLACEMENT - CROSS SECTIONS - SHEET 2 OF 2 - WESTCHESTER COUNTY	DEIS APPENDIX A - FINAL ISSUE	1"=25'-0"
OTHER DETAILS			
B-4250	FOUNDATION DRAWING - LONG APPROACH SPAN - BRIDGE REPLACEMENT	DEIS APPENDIX A - FINAL ISSUE	1"=300'-0"
B-4299	LONG APPROACH SPAN - BRIDGE REPLACEMENT - LEGENDS	DEIS APPENDIX A - FINAL ISSUE	NTS

NOTE:
1. THE SCALE MENTIONED IN THE DRAWINGS LIST IS FOR 22X34 SIZE (FULL SIZE) DRAWINGS. FOR 11X17 SIZE DRAWINGS, PLEASE DOUBLE THE GIVEN SCALE IN THE DRAWING.

LONG SPAN BRIDGE REPLACEMENT
KEY PLAN





NOTES:
1. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. B-4250.
2. FOR DETAILS OF ALL TEMPORARY CONSTRUCTION ELEMENTS, REFER TO SERIES C-6000 DRAWINGS.

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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Thruway Authority

TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

BRIDGE CROSSING PLAN

CONTRACT NUMBER 217815

DRAWING NO. B-4200
SHEET NO.

DOCUMENT STATUS: DEIS - APPENDIX A

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL

FILE NAME = J:\ØN-Y\Ø131000\Ø131219-00\Ø12 Drawings DEIS\ØSheets\ØExpedited Bridge DEIS\ØLong Span\ØB-4200.dgn
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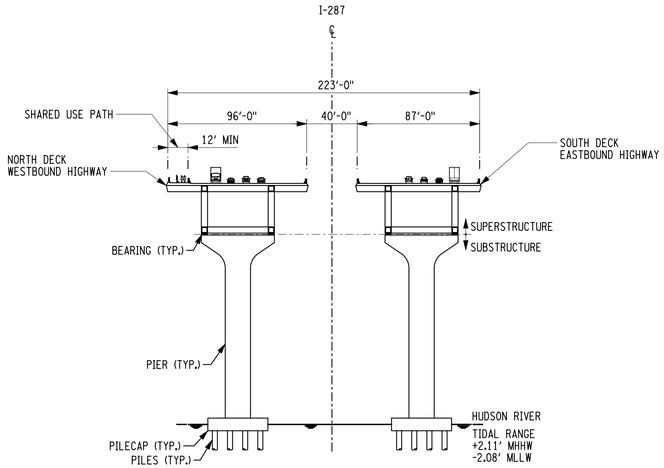
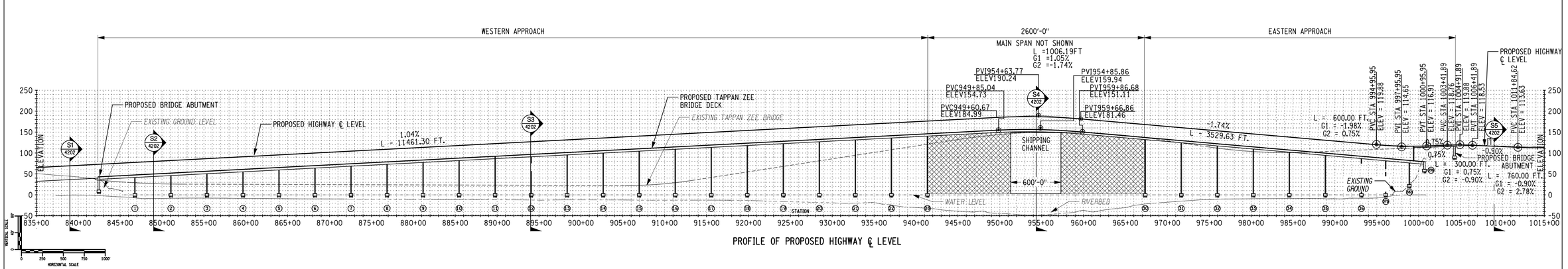


LONG SPAN HIGHWAY (TYP.)
(NOT TO SCALE)



PROFILE OF PROPOSED HIGHWAY ℄ LEVEL

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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CONTRACT NUMBER
217815

TYPICAL CROSS SECTION AND PROFILE

DRAWING NO. B-4201
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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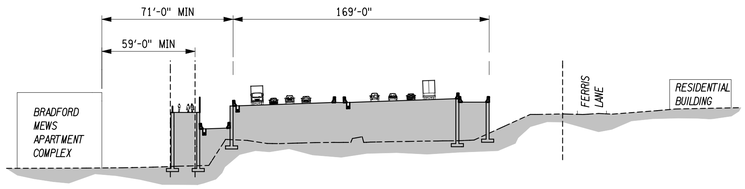
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL



SECTION 1 AT STA. 839+00
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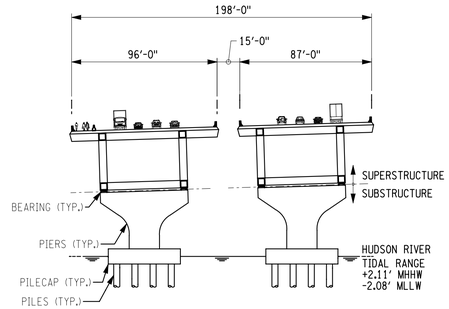
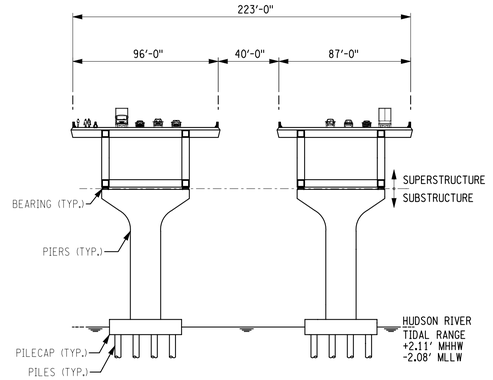


SECTION 2 STA. 849+00
NOT TO SCALE



SECTION 3 STA. 894+00
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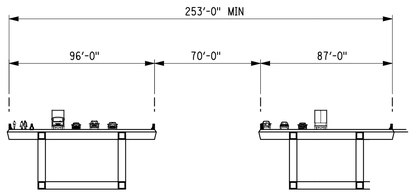
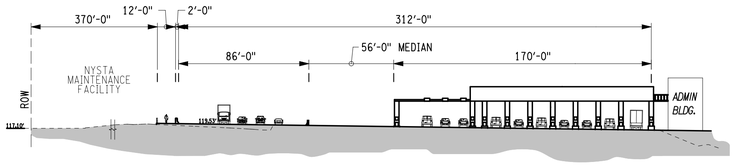


SUPERSTRUCTURE AND SUBSTRUCTURE FOR MAIN SPAN NOT SHOWN.

DETAILS OF THE MAIN SPAN ARCH AND CABLE STAY BRIDGE IS PROVIDED ON B-4230 AND B-4231.

SECTION 4 AT STA. 954+28
NOT TO SCALE



SECTION 5 AT STA. 1009+00
SCALE: 1"=50'-0"

NOTE:
1. FOR PILECAP DIMENSIONS, REFER TO DWG. NO. B-4250

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

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DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER 217815

TYPICAL CROSS SECTIONS

DRAWING NO. B-4202
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED
DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN CHECKED BY HEMAL PATEL

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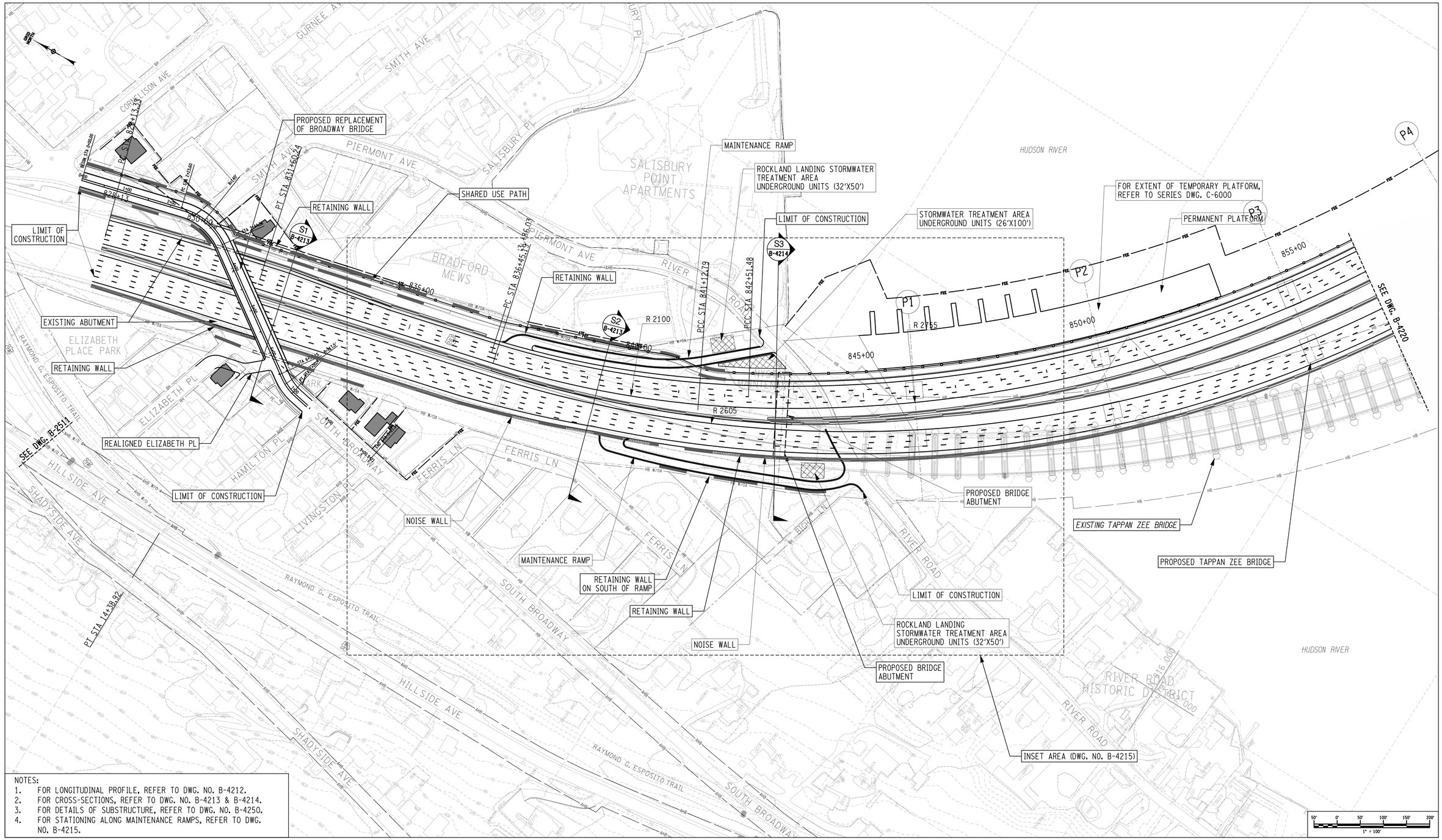

NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4212.
2. FOR CROSS-SECTIONS, REFER TO DWG. NO. B-4213 & B-4214.
3. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. NO. B-4250.
4. FOR STATIONING ALONG MAINTENANCE RAMPS, REFER TO DWG. NO. B-4215.

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER 217815

BRIDGE APPROACH PLAN
ROCKLAND COUNTY

DRAWING NO. B-4210
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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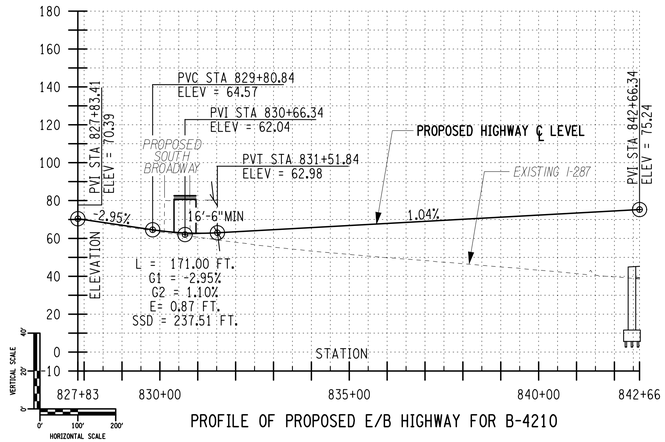
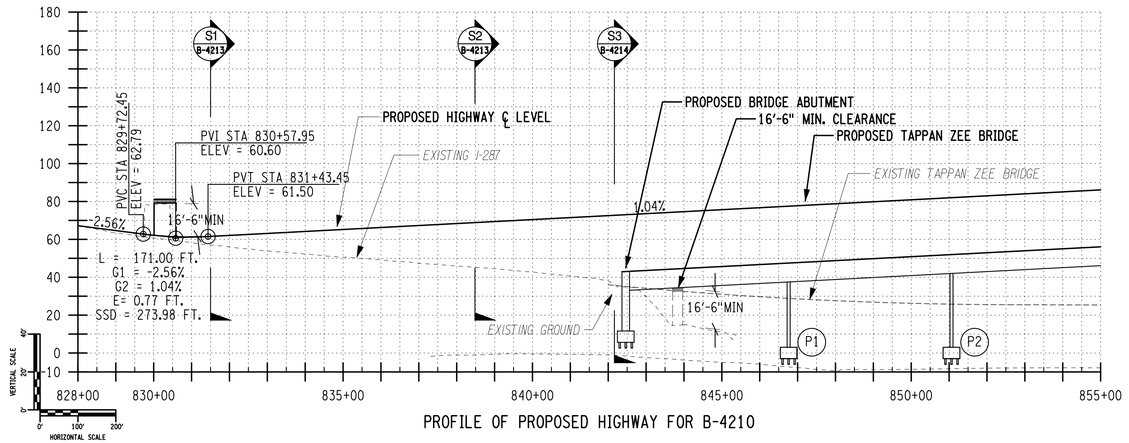
DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN



PROFILE OF PROPOSED E/B HIGHWAY FOR B-4210



PROFILE OF PROPOSED HIGHWAY FOR B-4210

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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PROJECT

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1	01/18/12	DEIS APPENDIX A ISSUE	JV
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DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER
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BRIDGE APPROACH PROFILES
ROCKLAND COUNTY

DRAWING NO. B-4212
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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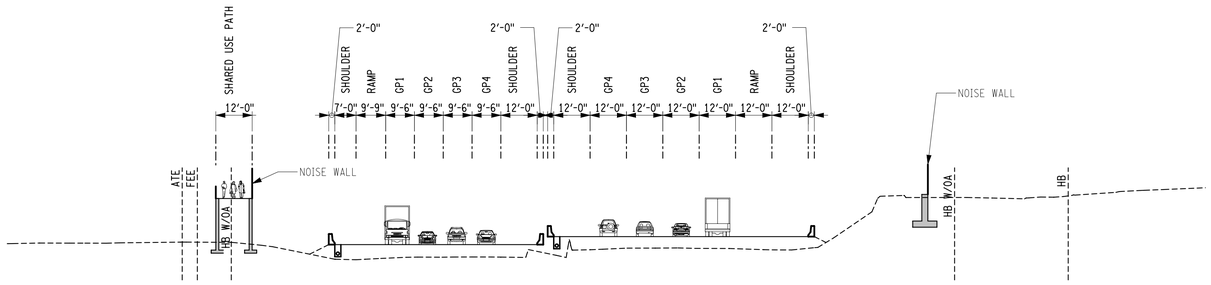

SECTION 1 AT STA. 831+00
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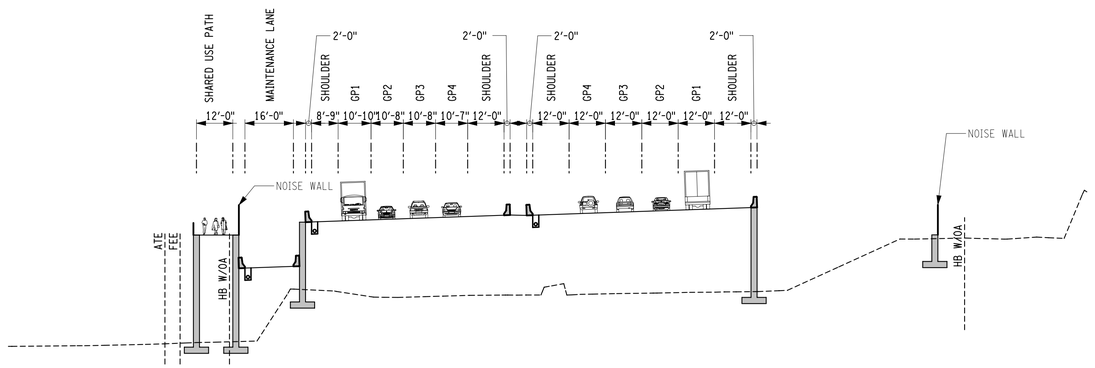

SECTION 2 AT STA. 838+12
SCALE: 1"=25'-0"

10 0 10 20 30 40 50'
1" = 25'

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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HUDSON RIVER CROSSING
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DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER
217815

CROSS SECTIONS - SHEET 1 OF 2
ROCKLAND COUNTY

DRAWING NO. B-4213
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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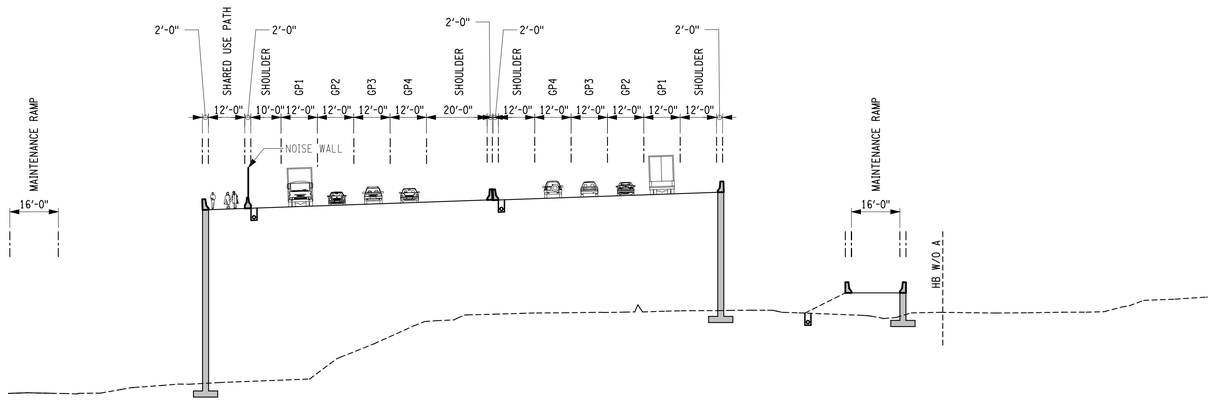
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



SECTION 3 AT STA. 842+16
SCALE: 1"=25'-0"

10 0 10 20 30 40 50'
1" = 25'

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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CONTRACT NUMBER 217815

CROSS SECTIONS - SHEET 2 OF 2
ROCKLAND COUNTY

DRAWING NO. B-4214
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL
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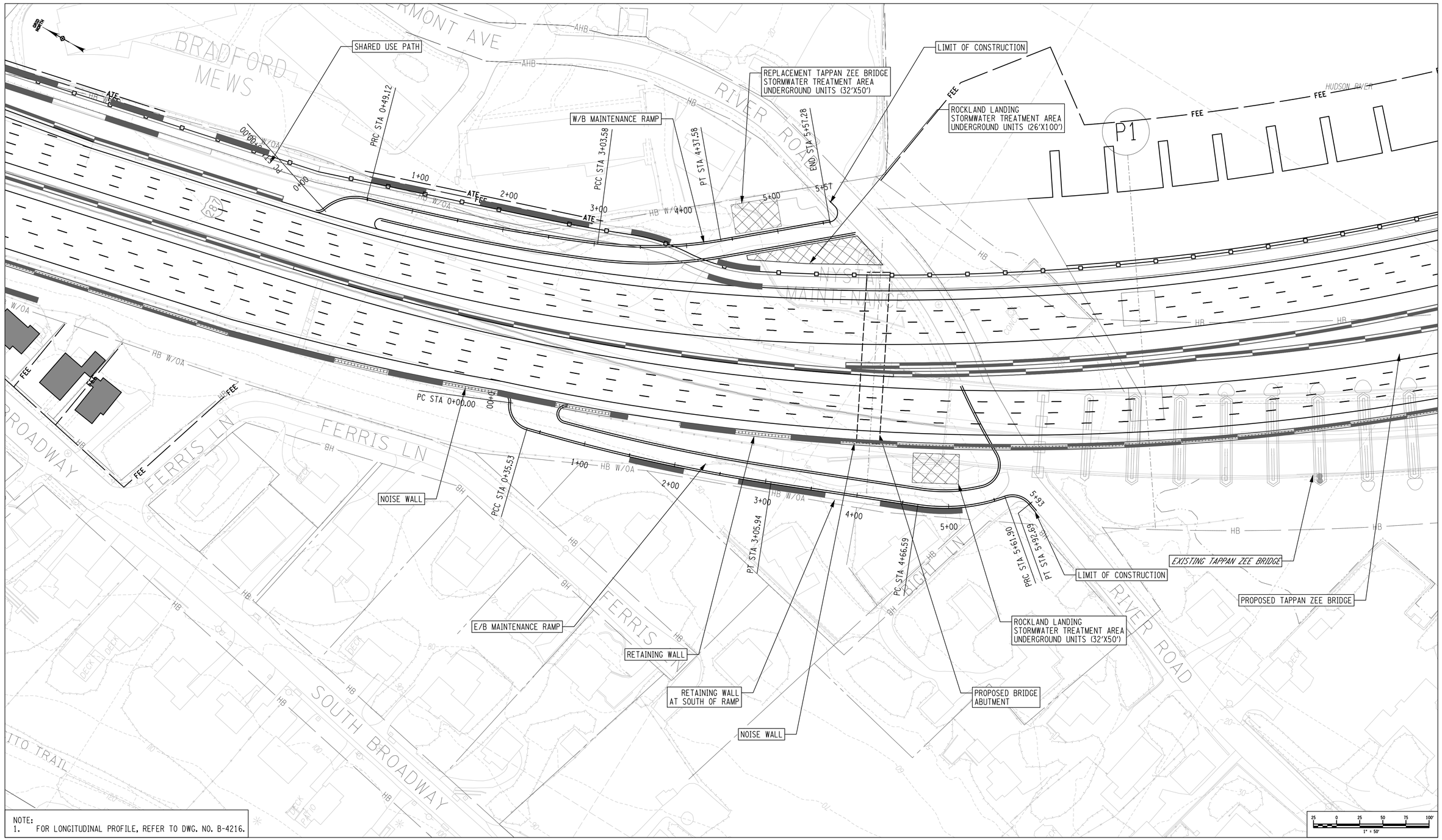

NOTE:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4216.

LONG APPROACH SPAN - BRIDGE REPLACEMENT

1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV
REV	DATE	DESCRIPTION	BY

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CONTRACT NUMBER 217815

MAINTENANCE RAMP PLAN
ROCKLAND COUNTY

DRAWING NO. B-4215
SHEET NO.

DOCUMENT STATUS: DEIS - APPENDIX A

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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PROJECT

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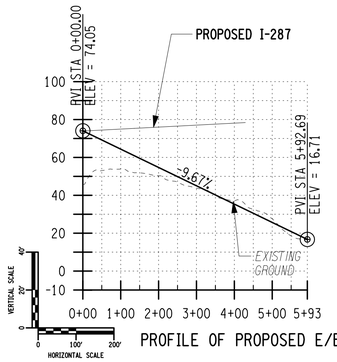
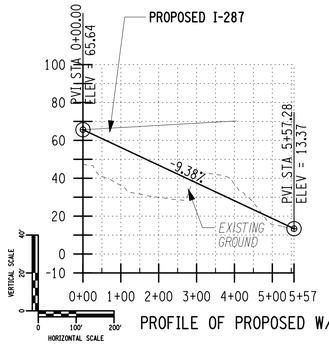
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



PROFILE OF PROPOSED E/B MAINTENANCE RAMP ℄ FOR B-4215



PROFILE OF PROPOSED W/B MAINTENANCE RAMP ℄ FOR B-4215

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER 217815

MAINTENANCE RAMP PROFILES
ROCKLAND COUNTY

DRAWING NO. B-4216
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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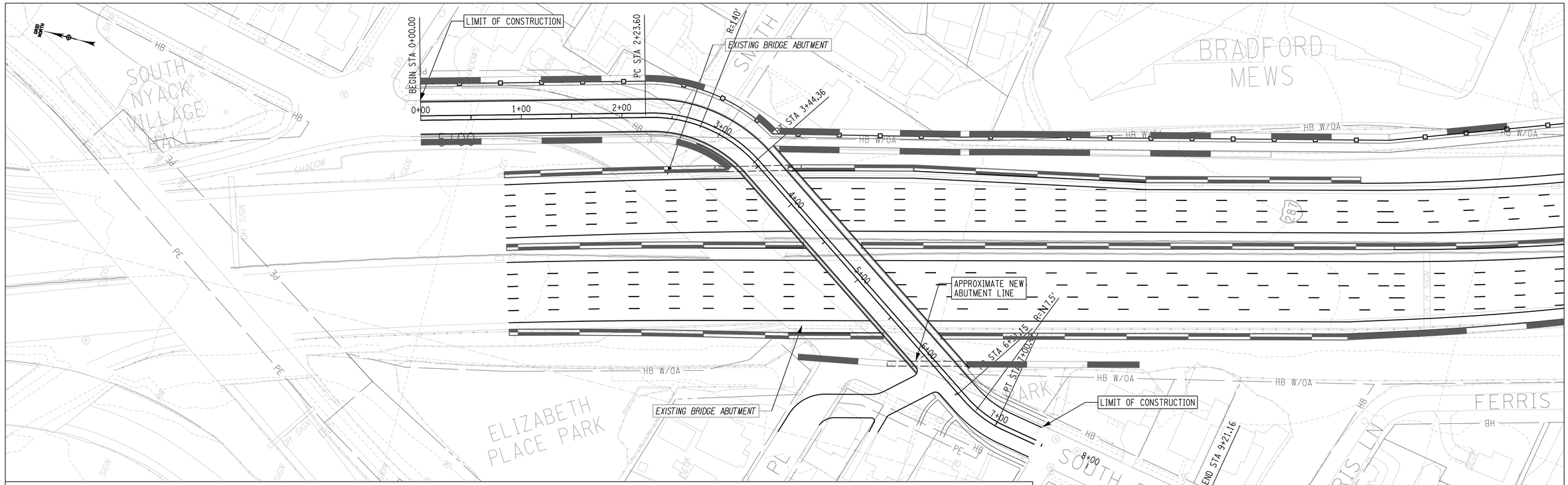

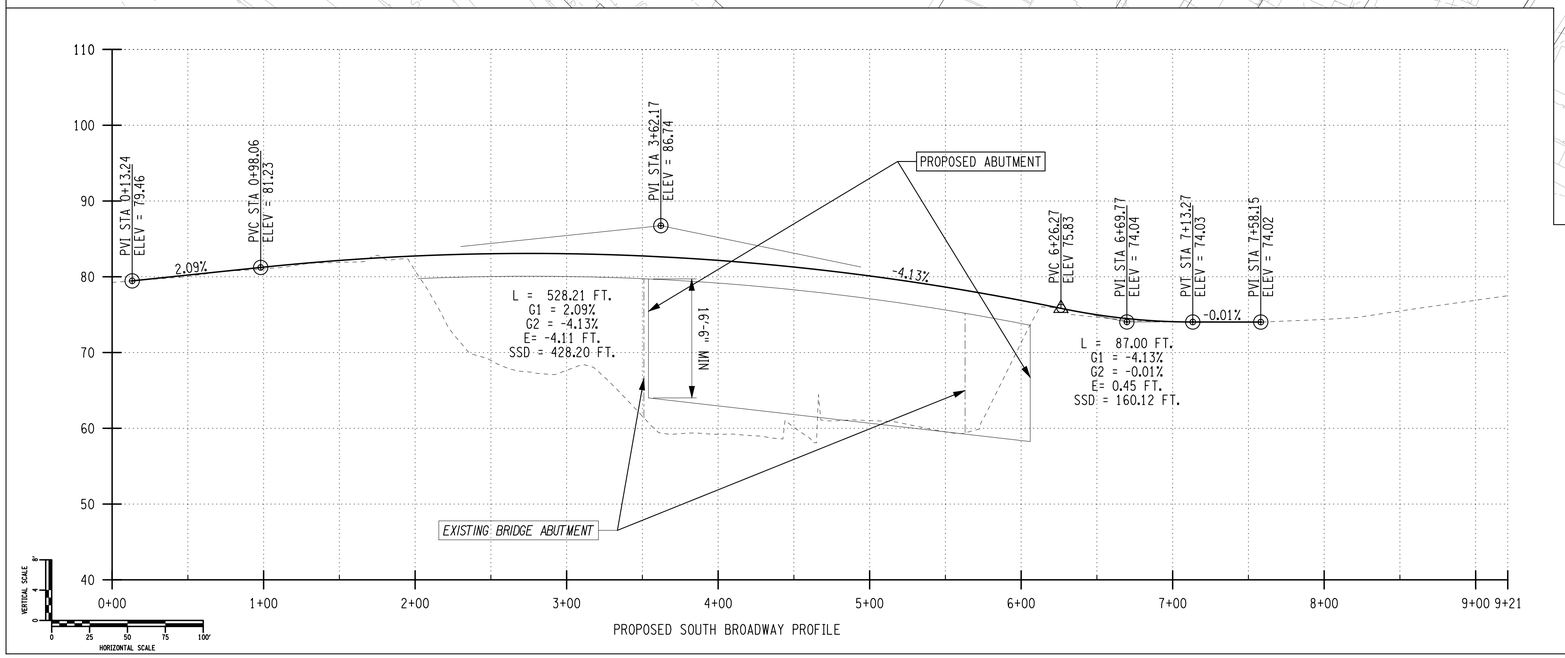

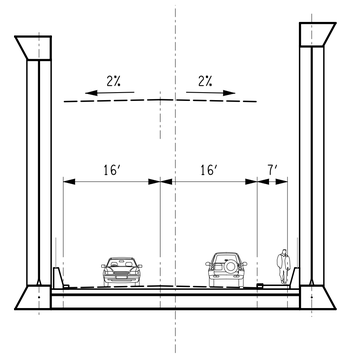

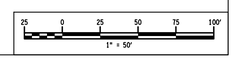

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

SOUTH BROADWAY BRIDGE
ROCKLAND COUNTY

DRAWING NO. B-4217
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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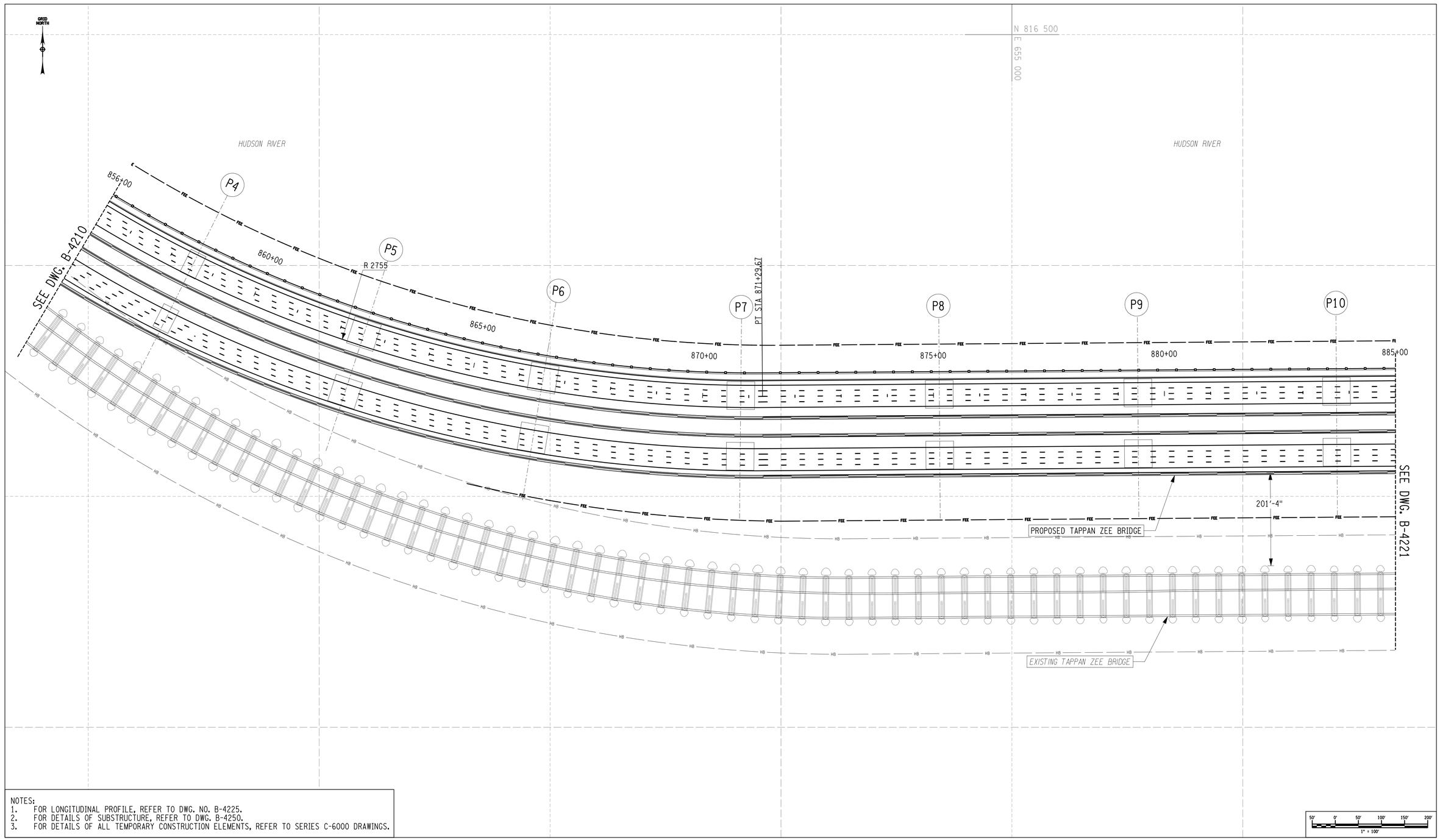
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4225.
2. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. B-4250.
3. FOR DETAILS OF ALL TEMPORARY CONSTRUCTION ELEMENTS, REFER TO SERIES C-6000 DRAWINGS.

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
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0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER 217815

BRIDGE CROSSING PLAN
SHEET 1 OF 5

DRAWING NO. B-4220
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL

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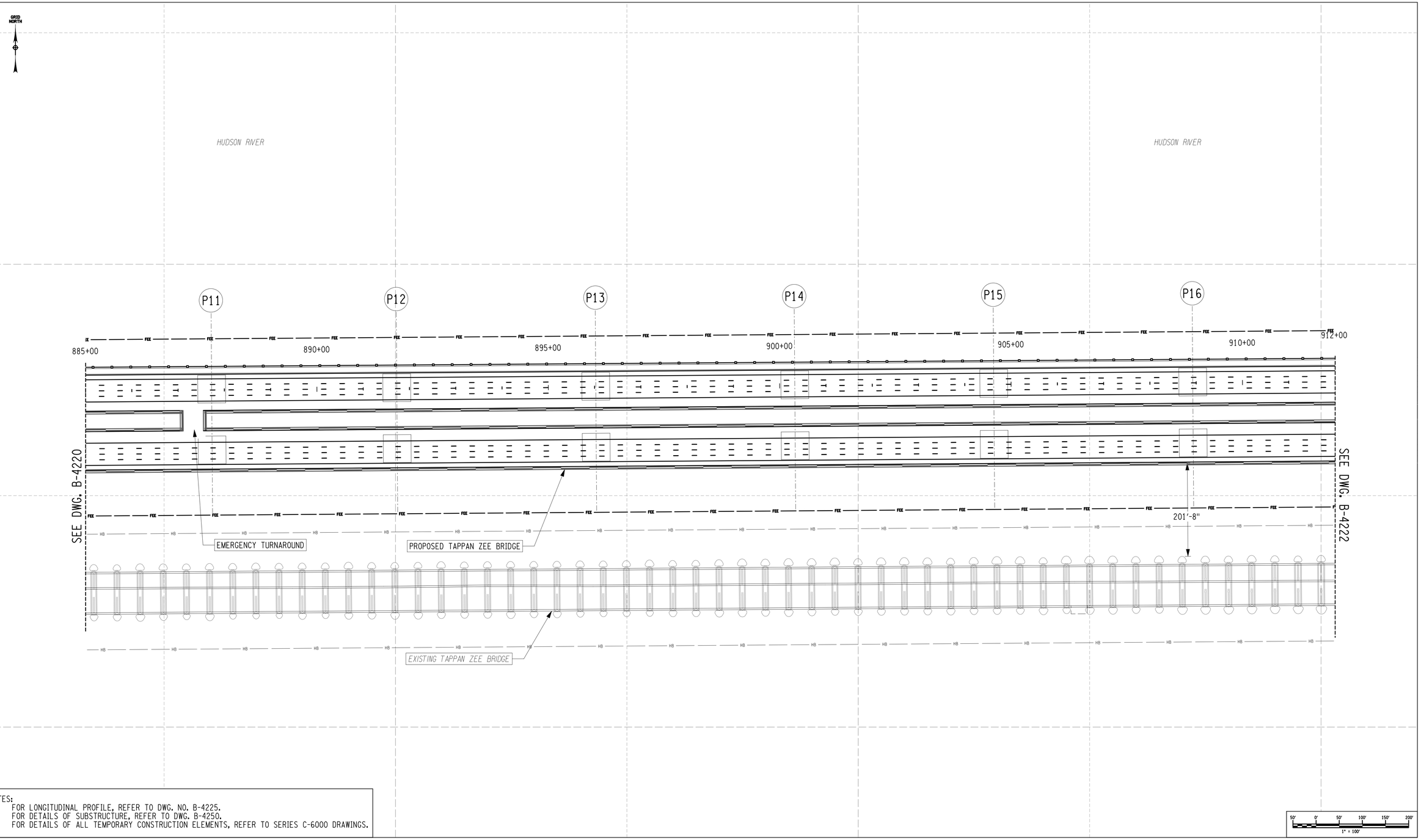

NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4225.
2. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. B-4250.
3. FOR DETAILS OF ALL TEMPORARY CONSTRUCTION ELEMENTS, REFER TO SERIES C-6000 DRAWINGS.

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

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BRIDGE CROSSING PLAN
SHEET 2 OF 5

CONTRACT NUMBER 217815

DRAWING NO. B-4221
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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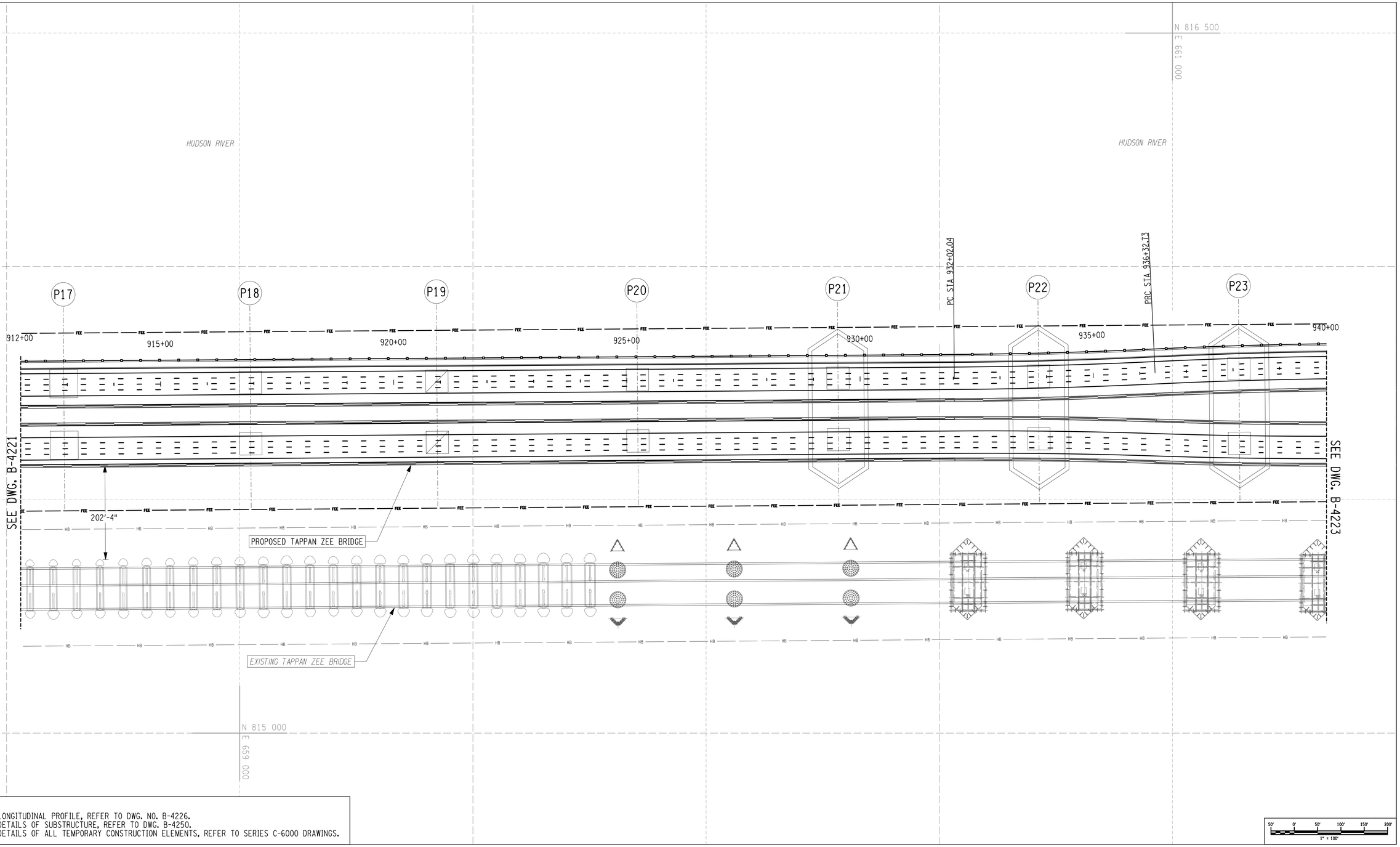

NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4226.
2. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. B-4250.
3. FOR DETAILS OF ALL TEMPORARY CONSTRUCTION ELEMENTS, REFER TO SERIES C-6000 DRAWINGS.

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REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

BRIDGE CROSSING PLAN
SHEET 3 OF 5

DRAWING NO. B-4222
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
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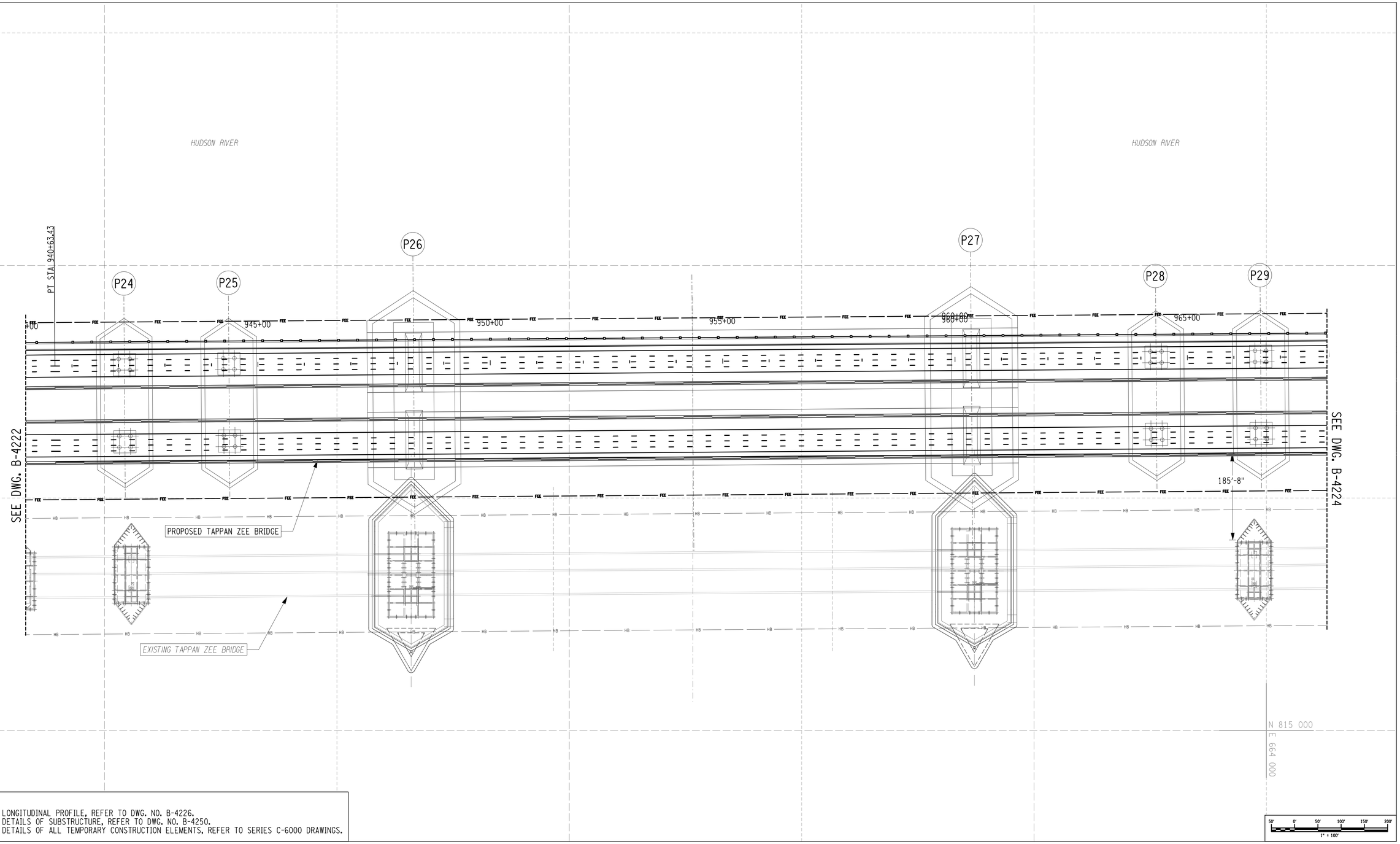

NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4226.
2. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. NO. B-4250.
3. FOR DETAILS OF ALL TEMPORARY CONSTRUCTION ELEMENTS, REFER TO SERIES C-6000 DRAWINGS.

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REV	DATE	DESCRIPTION	BY
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DOCUMENT STATUS: DEIS - APPENDIX A

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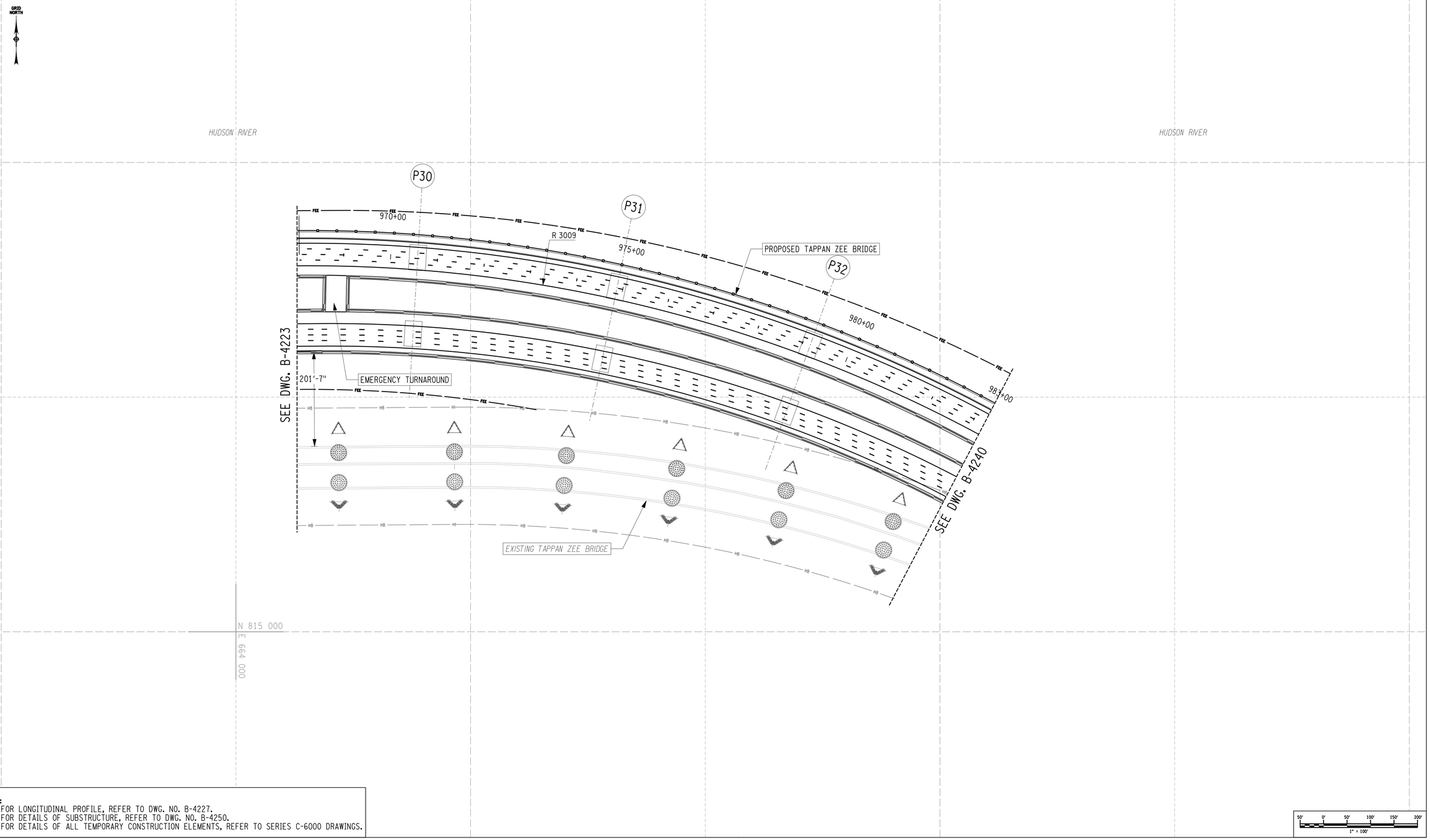
CONTRACT NUMBER 217815

BRIDGE CROSSING PLAN
SHEET 4 OF 5

DRAWING NO. B-4223
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION



NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4227.
2. FOR DETAILS OF SUBSTRUCTURE, REFER TO DWG. NO. B-4250.
3. FOR DETAILS OF ALL TEMPORARY CONSTRUCTION ELEMENTS, REFER TO SERIES C-6000 DRAWINGS.

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PROJECT

REV	DATE	DESCRIPTION	BY
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0	01/18/12	DEIS APPENDIX A ISSUE	JV

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

BRIDGE CROSSING PLAN
SHEET 5 OF 5

CONTRACT NUMBER
217815

DRAWING NO. B-4224
SHEET NO.

DOCUMENT STATUS: DEIS - APPENDIX A

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL

FILE NAME = J:\ØN-Y\Ø131000\Ø131219-00\Ø12 Drawings DEIS\ØSheets\ØExpedited Bridge DEIS\ØLong Span\ØB-4224.dgn
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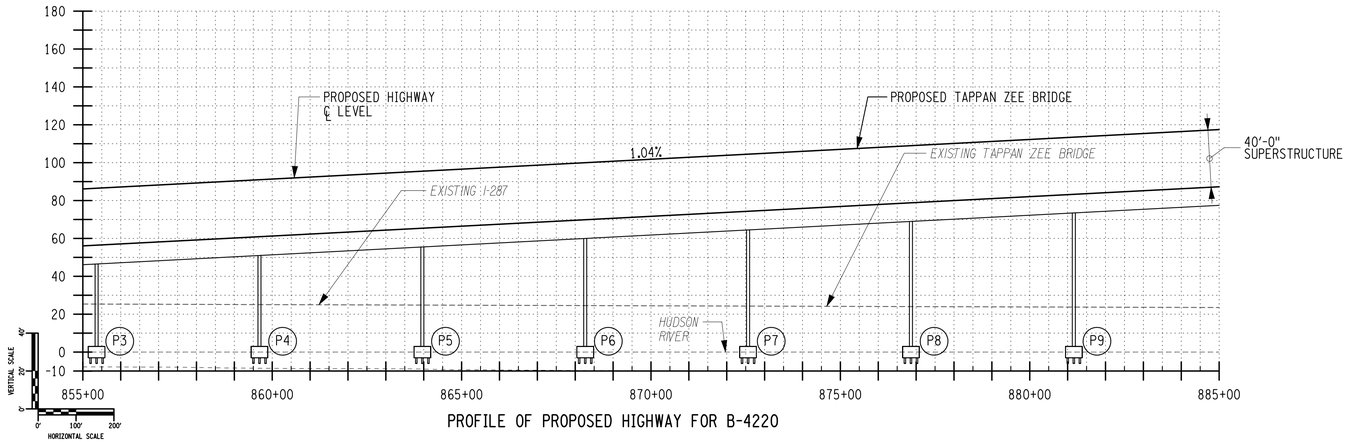

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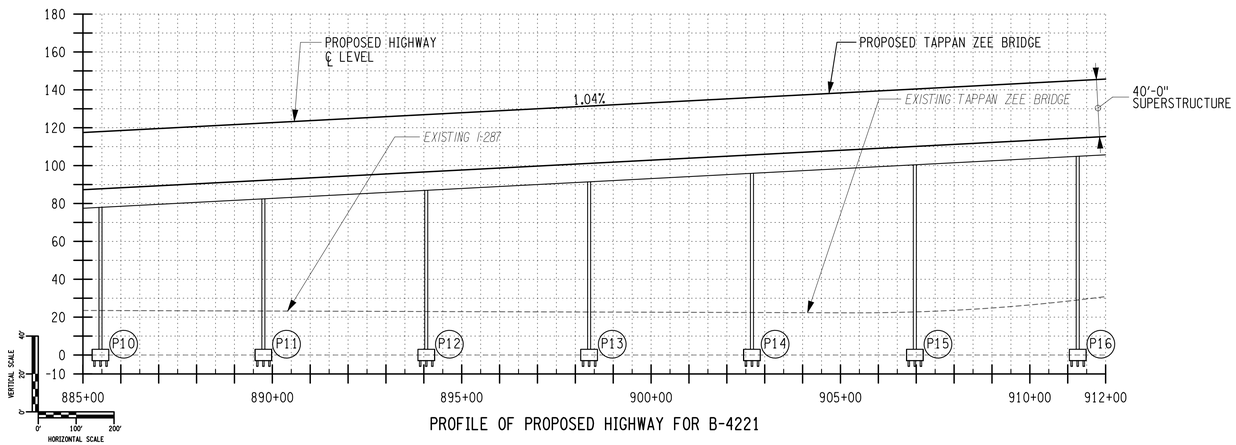

PROFILE OF PROPOSED HIGHWAY FOR B-4221

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

BRIDGE CROSSING PROFILES
SHEET 1 OF 3

DRAWING NO. B-4225
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN

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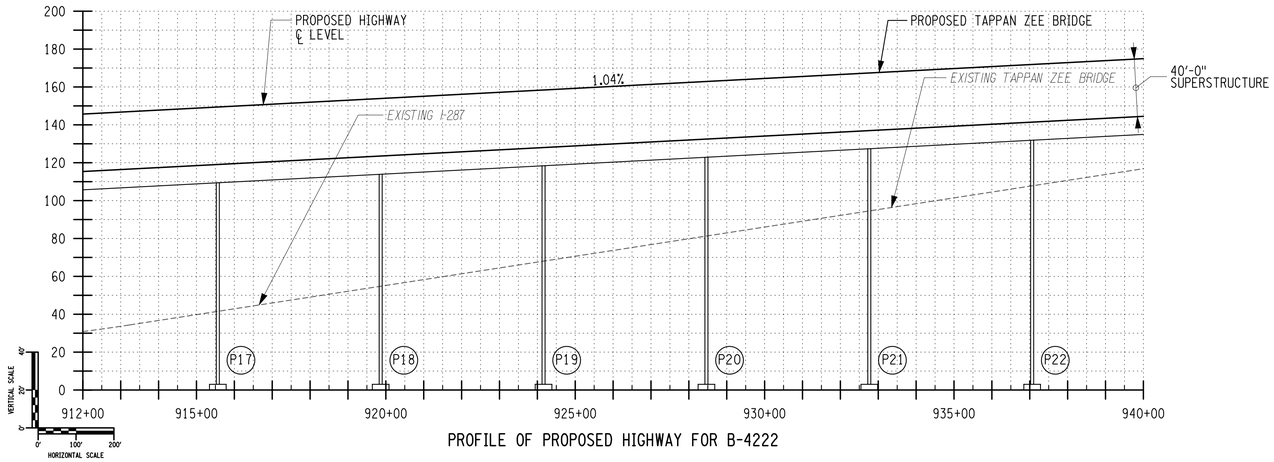

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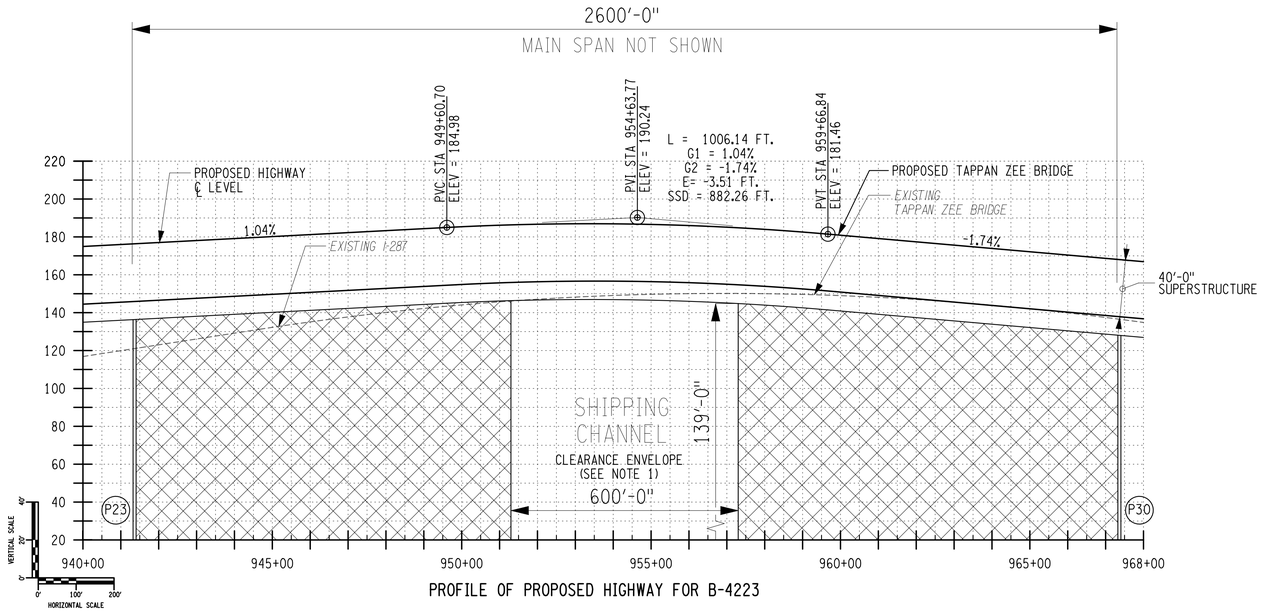

PROFILE OF PROPOSED HIGHWAY FOR B-4223

NOTE:
1. FOR DETAILS OF CLEARANCE ENVELOPE REFER TO DWG. NO. B-4230 AND B-4231.

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

BRIDGE CROSSING PROFILES
SHEET 2 OF 3

DRAWING NO. B-4226
SHEET NO.

DOCUMENT STATUS: DEIS - APPENDIX A

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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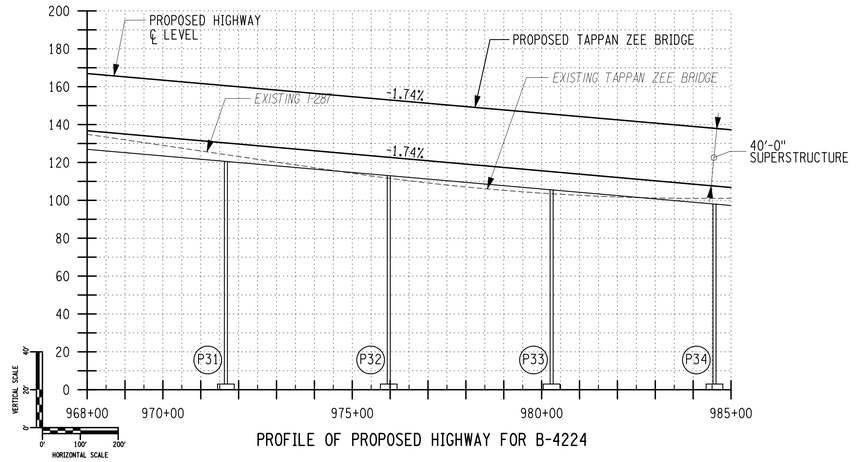

PROFILE OF PROPOSED HIGHWAY FOR B-4224

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER
217815

BRIDGE CROSSING PROFILES
SHEET 3 OF 3

DRAWING NO. B-4227
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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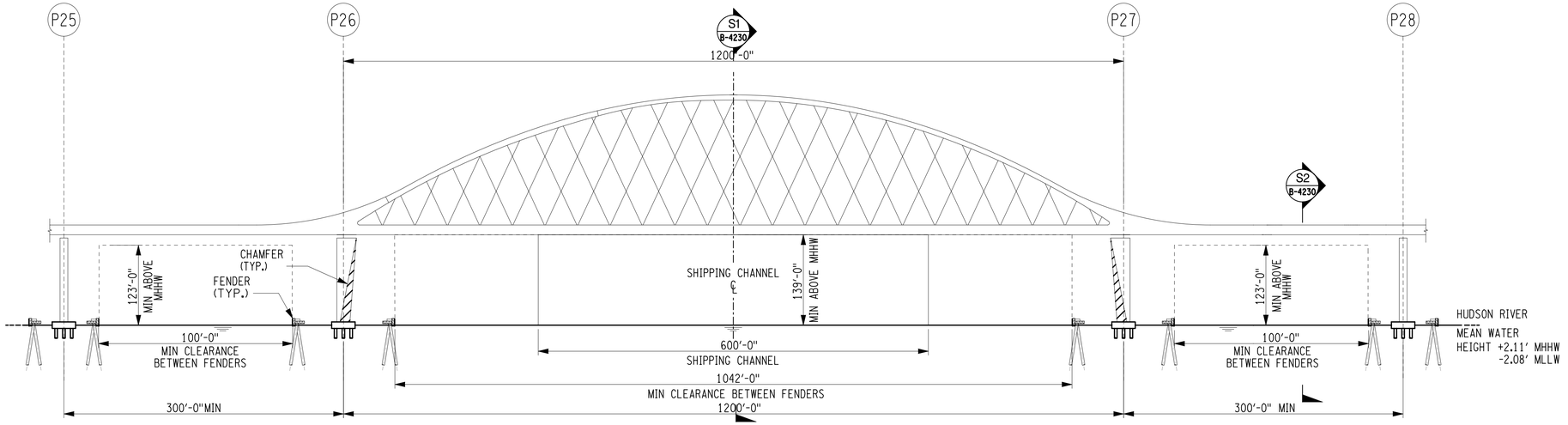
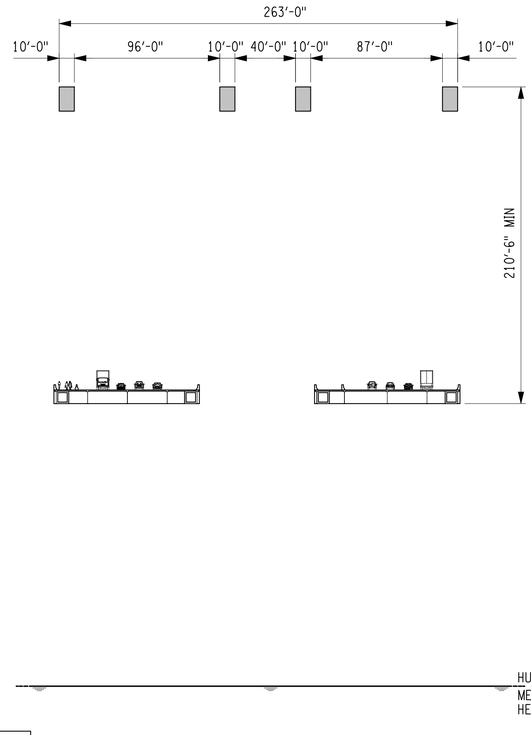
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL





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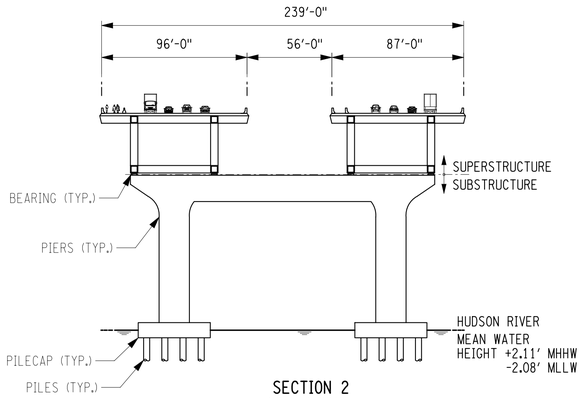

SECTION 2
NOT TO SCALE

NOTE:
1. DIMENSIONS ARE FOR ILLUSTRATION PURPOSES ONLY.

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HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER
217815

BRIDGE CROSSING
MAIN SPAN WITH ARCH

DRAWING NO. B-4230
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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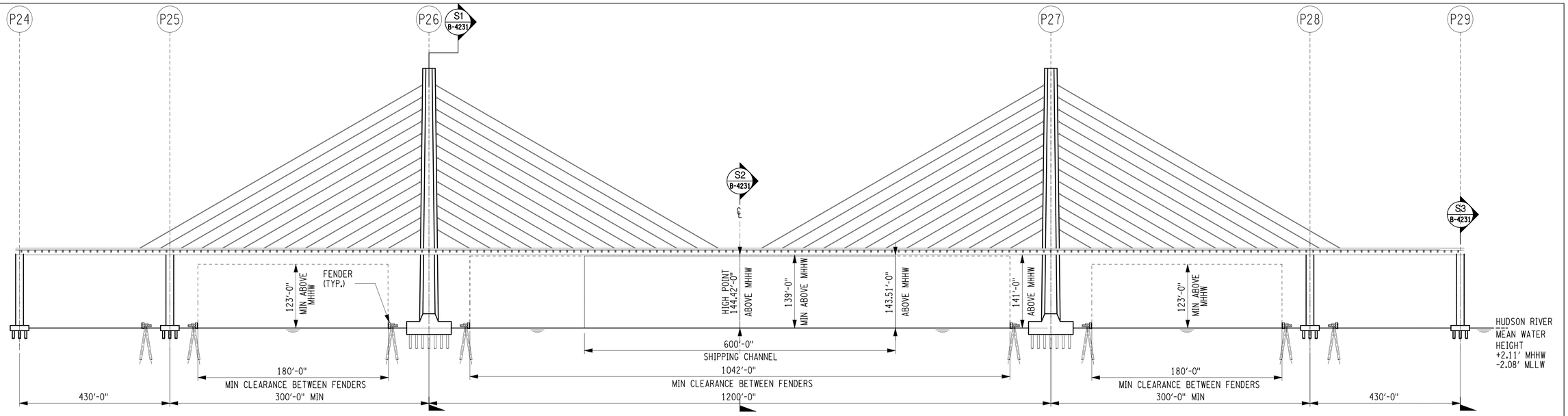
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



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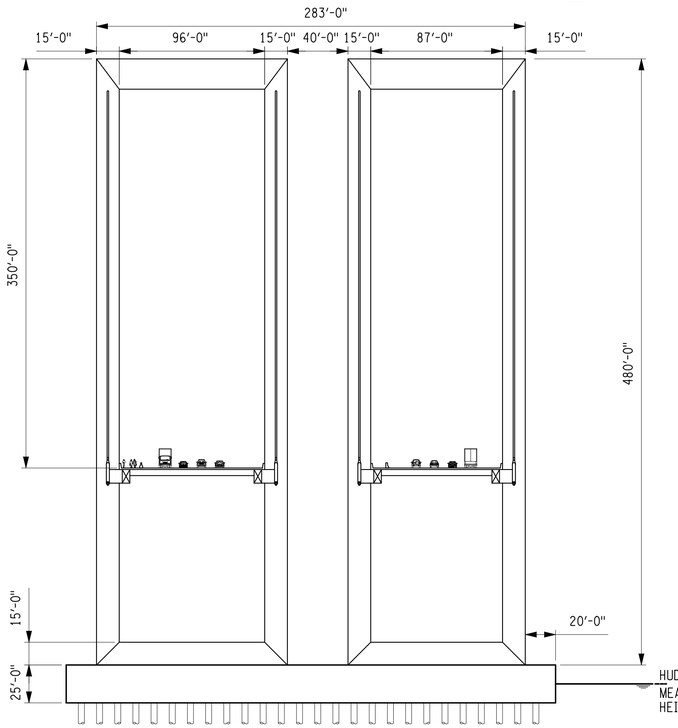

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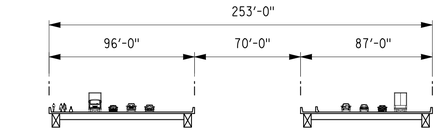

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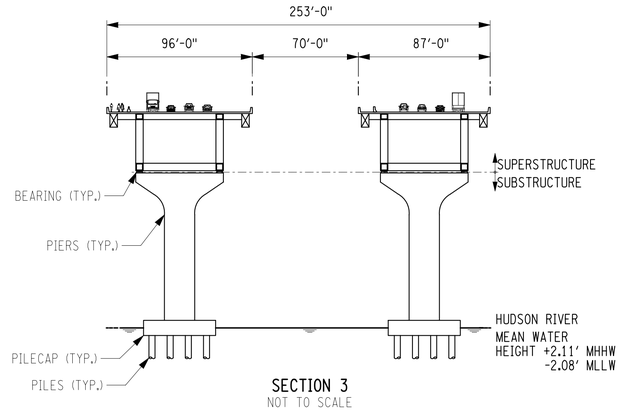

SECTION 3
NOT TO SCALE

NOTE:
1. DIMENSIONS ARE FOR ILLUSTRATION PURPOSES ONLY.

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

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CONTRACT NUMBER
217815

BRIDGE CROSSING
MAIN SPAN WITH CABLE STAYED

DRAWING NO. B-4231
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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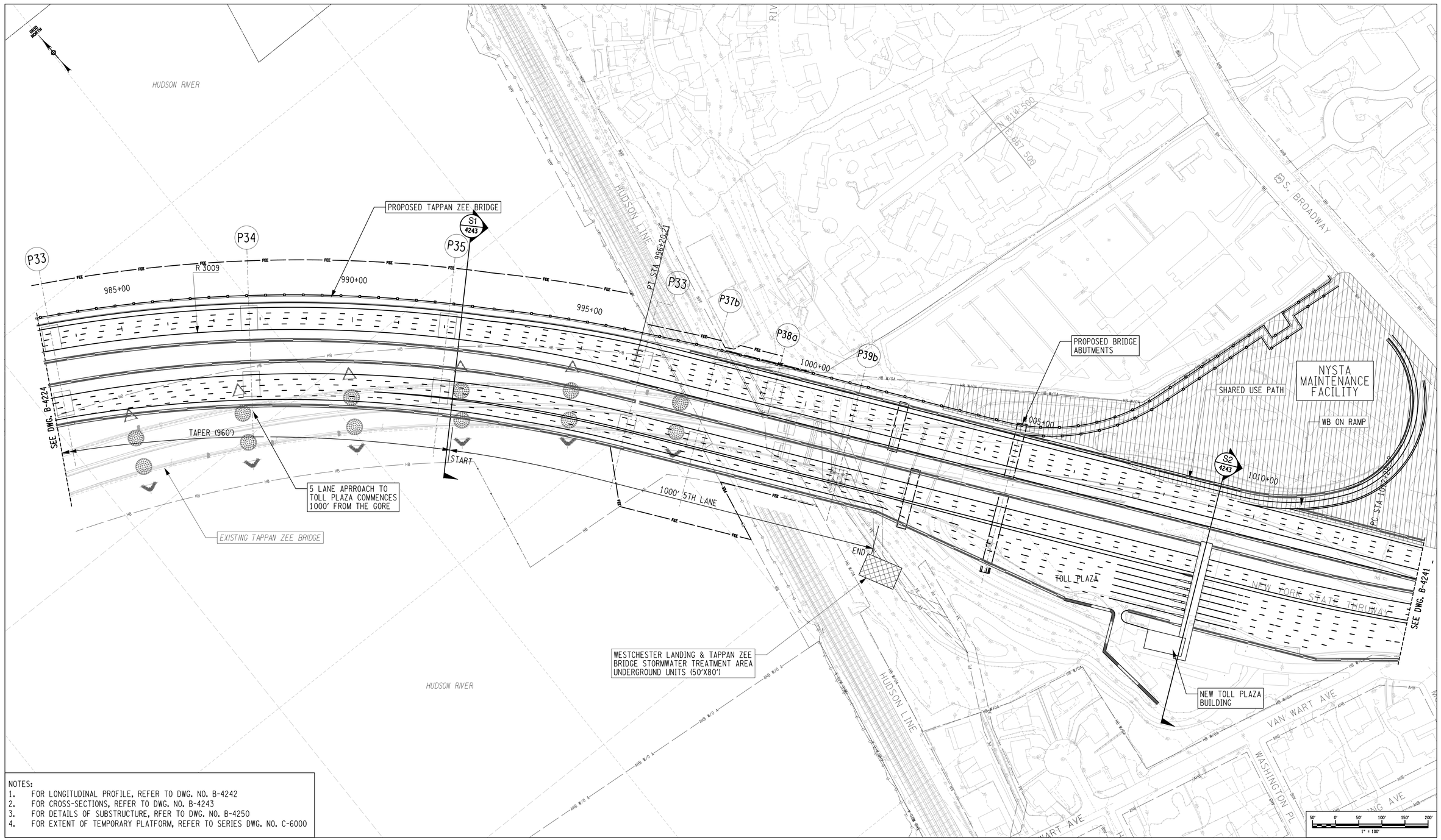
DRAWN BY HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL



NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO. B-4242
2. FOR CROSS-SECTIONS, REFER TO DWG. NO. B-4243
3. FOR DETAILS OF SUBSTRUCTURE, RFER TO DWG. NO. B-4250
4. FOR EXTENT OF TEMPORARY PLATFORM, REFER TO SERIES DWG. NO. C-6000

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0	01/18/12	DEIS APPENDIX A ISSUE	JV

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BRIDGE APPROACH PLAN - SHEET 1 OF 2
WESTCHESTER COUNTY

CONTRACT NUMBER
217815

DRAWING NO. B-4240
SHEET NO.

DOCUMENT STATUS: DEIS - APPENDIX A

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL

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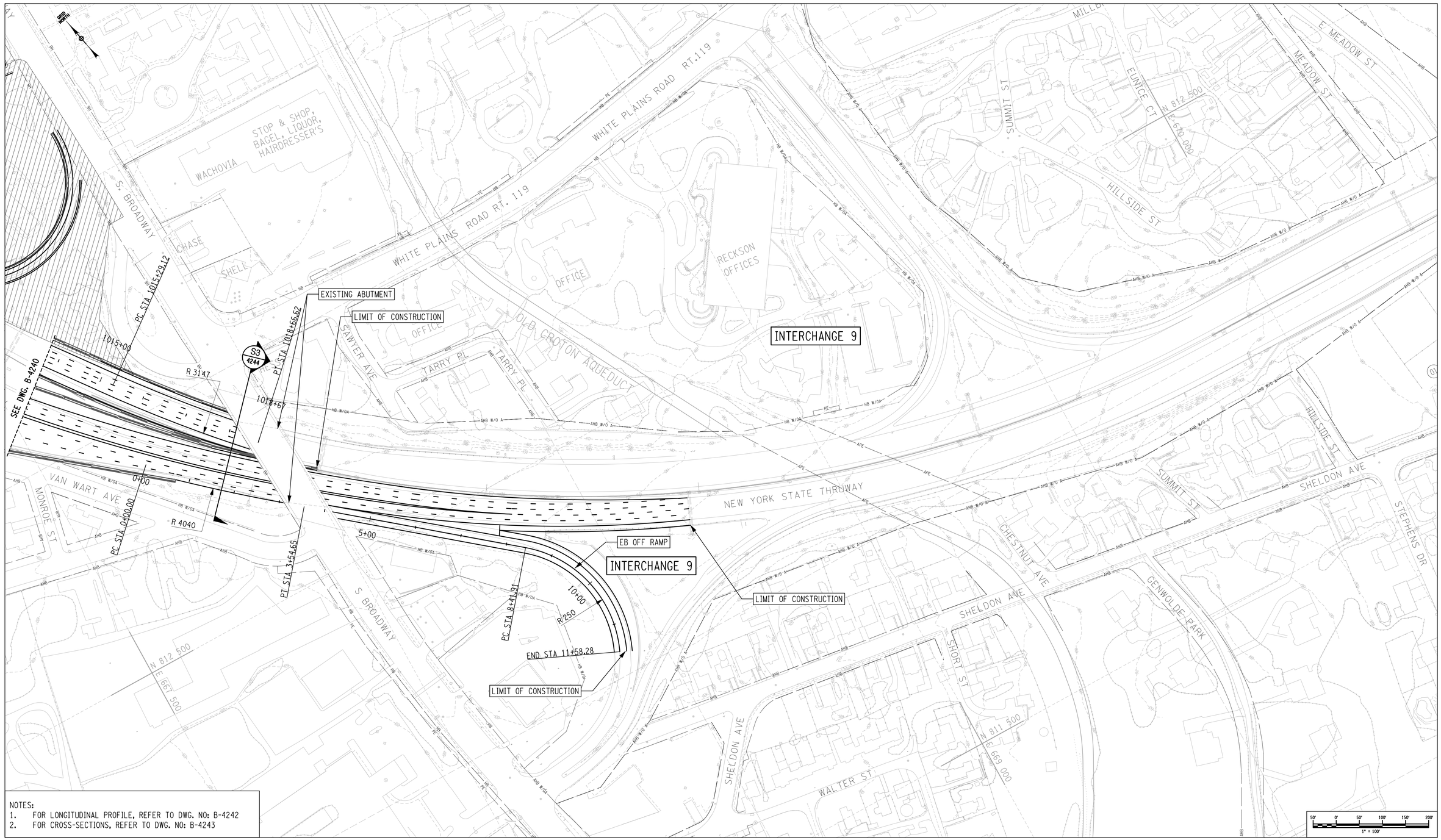

NOTES:
1. FOR LONGITUDINAL PROFILE, REFER TO DWG. NO: B-4242
2. FOR CROSS-SECTIONS, REFER TO DWG. NO: B-4243

LONG APPROACH SPAN - BRIDGE REPLACEMENT

ARUP
Arup USA, Inc.
77 Water Street
New York, NY 10005
Tel (212) 896 3000
www.arup.com

Thruway Authority

TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

BRIDGE APPROACH PLAN - SHEET 2 OF 2
WESTCHESTER COUNTY

DRAWING NO. B-4241
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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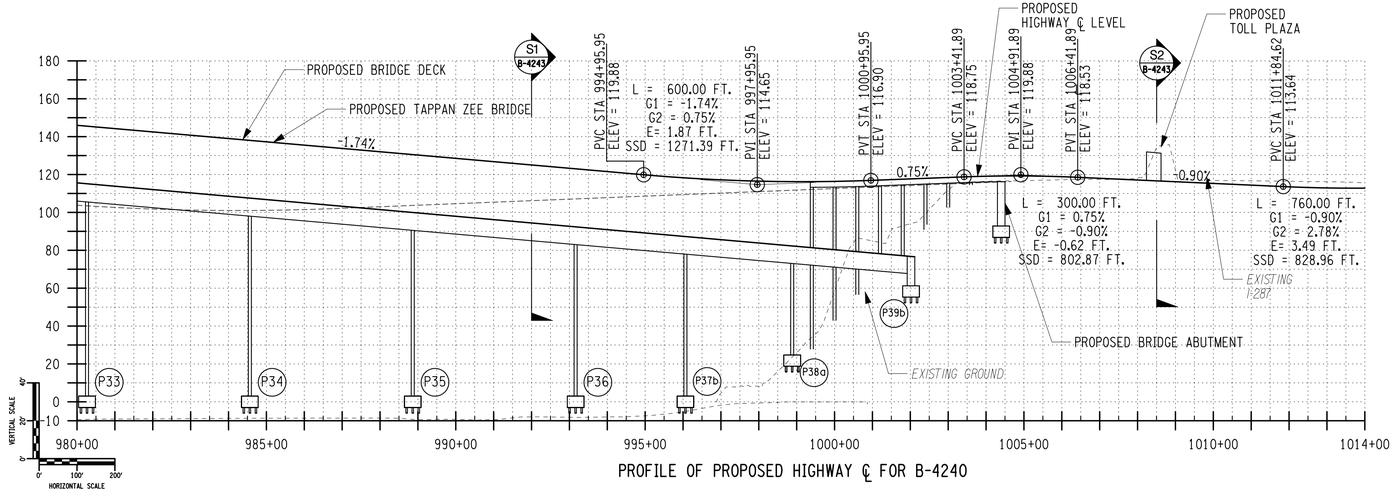
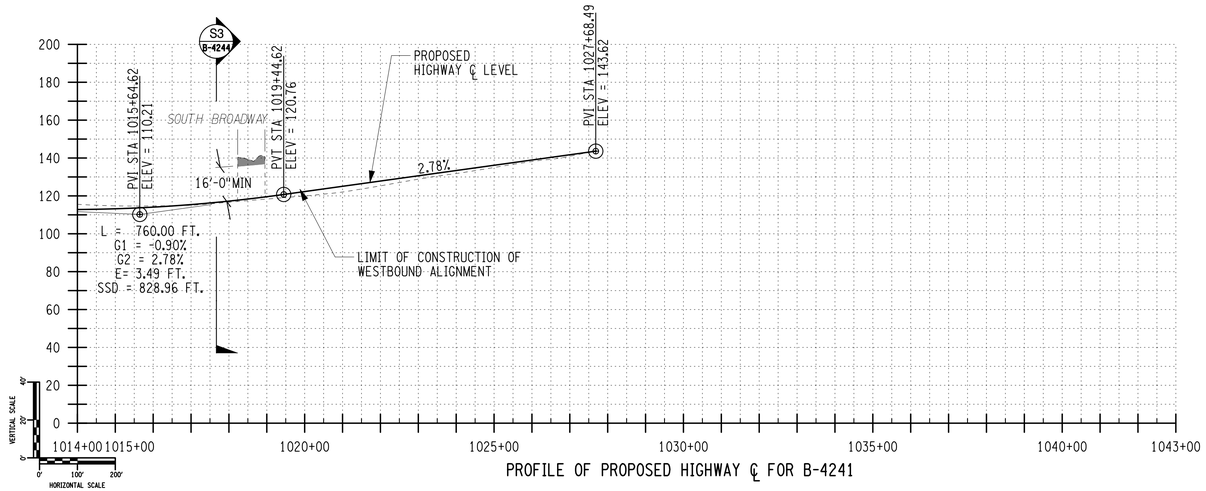
USER = kirby.sicherman
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL ESTIMATED BY HEMAL PATEL DRAFTED BY ADAM FINKIN DESIGNED BY JODY VUKAS CHECKED BY LEE GILL CHECKED BY HEMAL PATEL



PROFILE OF PROPOSED HIGHWAY ℄ FOR B-4240



PROFILE OF PROPOSED HIGHWAY ℄ FOR B-4241

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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Thruway Authority

TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

BRIDGE APPROACH PROFILES
WESTCHESTER COUNTY

CONTRACT NUMBER
217815

DRAWING NO. B-4242
SHEET NO.

DOCUMENT STATUS: DEIS - APPENDIX A

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

FILE NAME = J:\ØN-Y\Ø131000\Ø131219-00\Ø12 Drawings DEIS\ØSheets\ØExpedited Bridge DEIS\ØLong Span\ØB-4242.dgn
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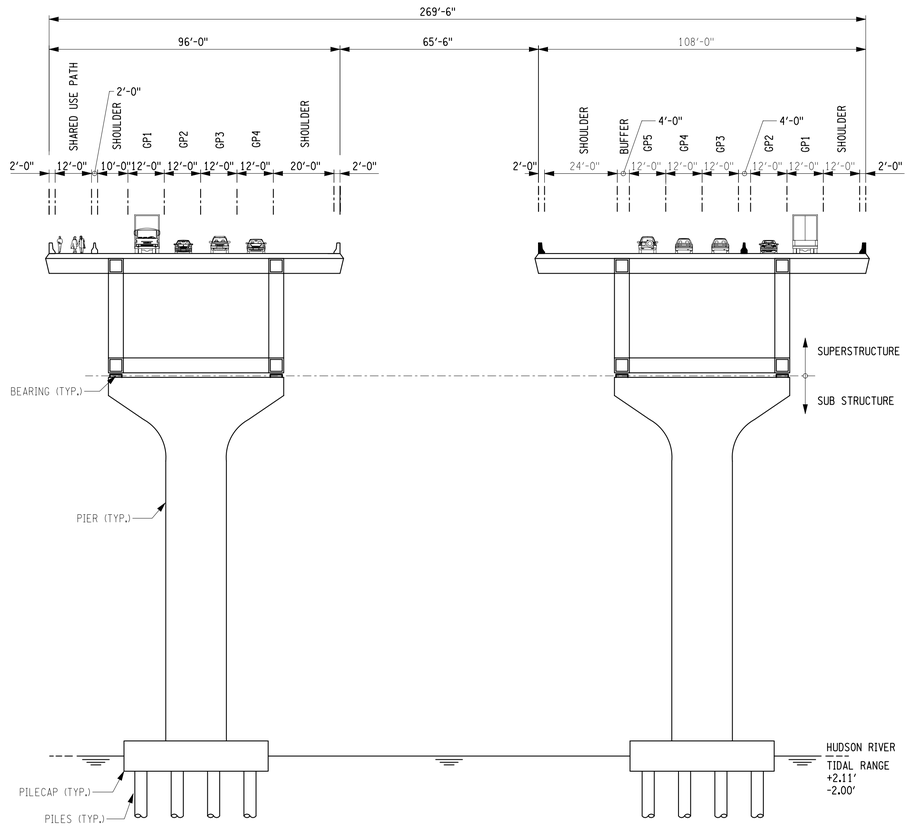
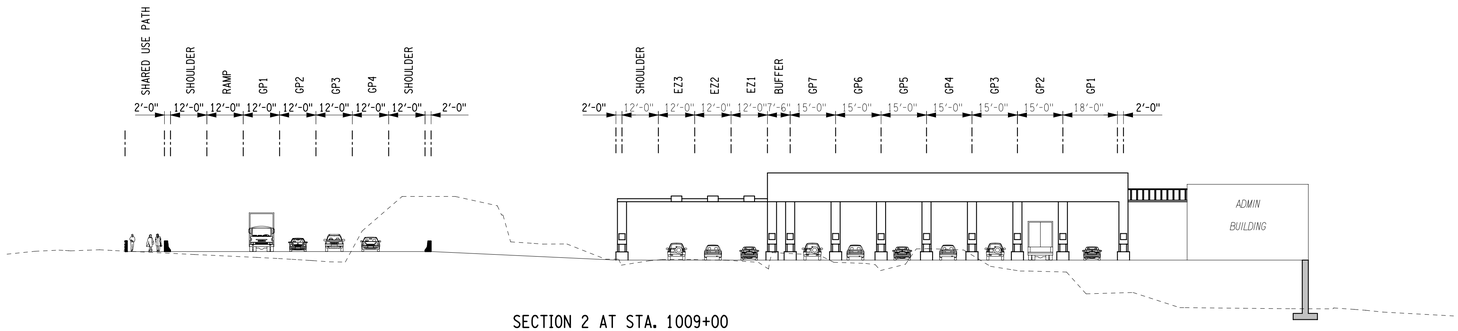


SECTION 1 AT STA. 992+00
SCALE: 1"=25'-0"



SECTION 2 AT STA. 1009+00
SCALE: 1"=25'-0"

10 0 10 20 30 40 50'
1" = 25'

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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DATE/TIME = 1/17/2012 6:52:25 PM
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DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY HEMAL PATEL DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL

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Thruway Authority

TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

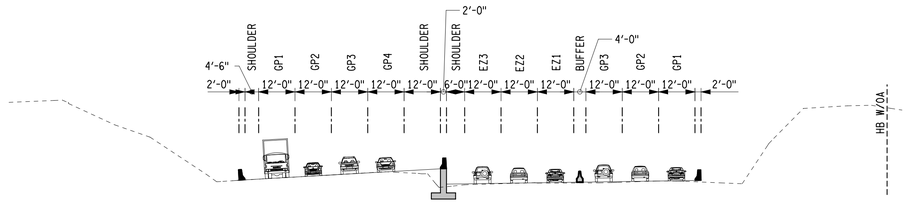
ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

CROSS SECTIONS - SHEET 1 OF 2
WESTCHESTER COUNTY

DRAWING NO. B-4243
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION



SECTION 3 AT STA. 1018+00
SCALE: 1"=25'-0"

10 0 10 20 30 40 50'
1" = 25'

LONG APPROACH SPAN - BRIDGE REPLACEMENT

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Arup USA, Inc.
77 Water Street
New York, NY 10005
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Thruway Authority

TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER 217815

CROSS SECTIONS - SHEET 2 OF 2
WESTCHESTER COUNTY

DRAWING NO. B-4244
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

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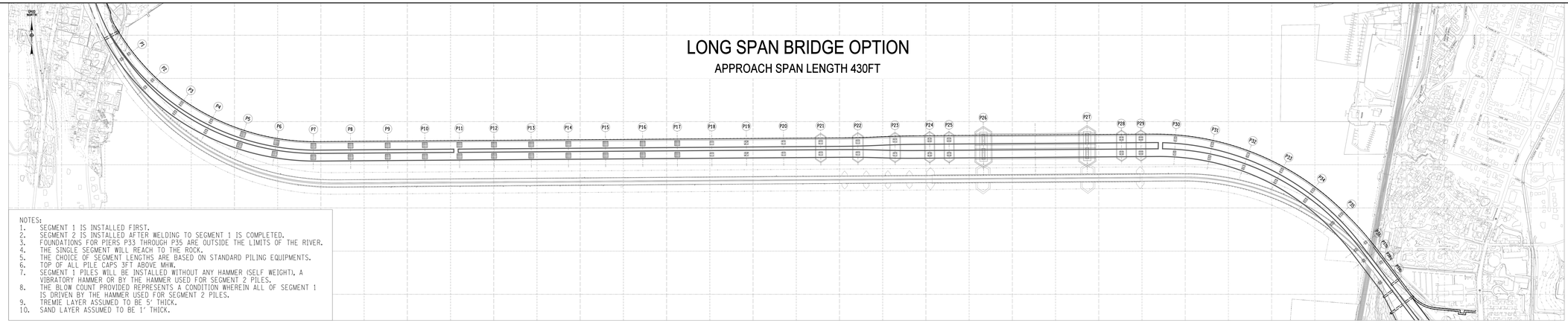
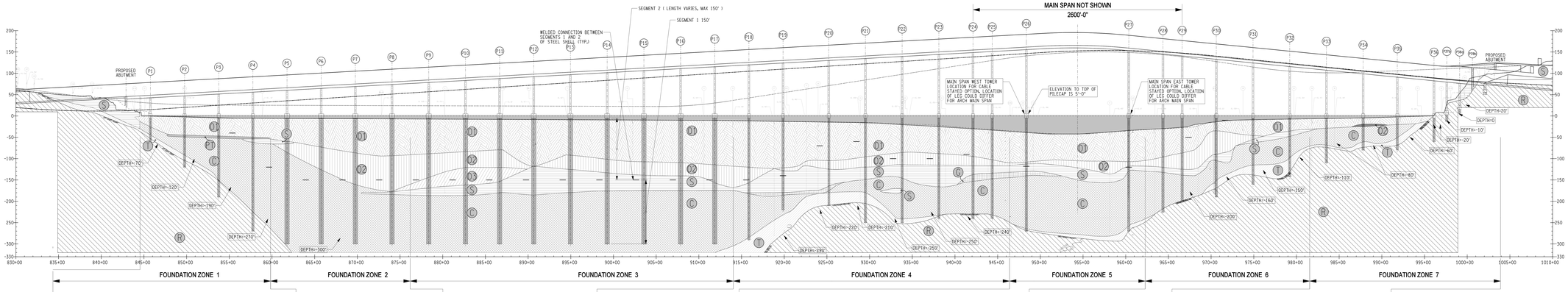
USER = kirby.sicherman
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL

LONG SPAN BRIDGE OPTION

APPROACH SPAN LENGTH 430FT



NOTES:
1. SEGMENT 1 IS INSTALLED FIRST.
2. SEGMENT 2 IS INSTALLED AFTER WELDING TO SEGMENT 1 IS COMPLETED.
3. FOUNDATIONS FOR PIERS P33 THROUGH P35 ARE OUTSIDE THE LIMITS OF THE RIVER.
4. THE SINGLE SEGMENT WILL REACH TO THE ROCK.
5. THE CHOICE OF SEGMENT LENGTHS ARE BASED ON STANDARD PILING EQUIPMENTS.
6. TOP OF ALL PILE CAPS 3FT ABOVE MHW.
7. SEGMENT 1 PILES WILL BE INSTALLED WITHOUT ANY HAMMER (SELF WEIGHT), A VIBRATORY HAMMER OR BY THE HAMMER USED FOR SEGMENT 2 PILES.
8. THE BLOW COUNT PROVIDED REPRESENTS A CONDITION WHEREIN ALL OF SEGMENT 1 IS DRIVEN BY THE HAMMER USED FOR SEGMENT 2 PILES.
9. TREMIE LAYER ASSUMED TO BE 5' THICK.
10. SAND LAYER ASSUMED TO BE 1' THICK.



FOUNDATIONS 4' - 10' DIA PILES * SEE NOTE 8		P1 TO P2		P3 TO P4		P5 TO P8		P9 TO P17		P18 TO P25		MAIN SPAN (P26 AND P27)						P28 TO P32		P33 TO P35		P36 TO P39B
												NORTH LEG			SOUTH LEG							
	PILE LAYOUT	6' DIA. PILES		6' DIA. PILES		4' DIA. PILES		4' DIA. PILES		8' DIA. PILES		10' DIA. PILES			10' DIA. PILES			6' DIA. PILES		6' DIA. PILES		
		• TOTAL NO. OF PILES/PILECAP=4 • 2x2 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2		• TOTAL NO. OF PILES/PILECAP=6 • 2x3 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2		• TOTAL NO. OF PILES/PILECAP=25 • 5x5 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2 • PILE PENETRATION LENGTH = 300FT		• TOTAL NO. OF PILES/PILECAP=23 • 5x5 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2 • PILE PENETRATION LENGTH = 300FT		• TOTAL NO. OF PILES/PILECAP=4 • 2x2 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2		• TOTAL NO. OF PILE CAPS=4			• TOTAL NO. OF PILE CAPS=4			• TOTAL NO. OF PILES/PILECAP=6 • 2x3 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2		• TOTAL NO. OF PILES/PILECAP=6 • 2x3 PILE ARRANGEMENT • TOTAL NO. OF PILE CAPS FOR EACH LOCATION = 2		SPREAD FOOTING DIRECTLY RESTING ON ROCK (SEE NOTE 3)
	STEEL SHELL THICKNESS	1.5IN		1.5IN		1.0IN		1.0IN		2.0IN		VERTICAL AND BATTERED PILES 2.0IN			VERTICAL AND BATTERED PILES 2.0IN			1.5IN		1.5IN		
	TOTAL NO OF PILES	16		24		200		414		48		16			16			48		36		
	NO OF ROCK SOCKETS	16 (LENGHT 30ft)		0		0		0		0		16 (LENGTH 70-90ft)			16 (LENGTH 70-90ft)			0		0		
SEGMENT 1*	DRIVING HAMMER TYPE	BSP HA 40	IHC S-750	BSP HA 40	IHC S-750	JUNTTAN HHK 25S	IHC S-600	JUNTTAN HHK 25S	IHC S-600	BSP HA 40	IHC S-750	BSP HA 40	IHC S-600	IHC S-750	BSP HA 40	IHC S-600	IHC S-750	BSP HA 40	IHC S-750	BSP HA 40	IHC S-750	
	NO OF BLOWS/PILE	1000	600	1800	1200	1100	700	1100	700	900	700	900	1200	700	900	1200	700	1000	600	1600	1000	
	HAMMER ENERGY (k-ft)	347.2	550.8	347.2	550.8	271.2	443.5	271.2	443.5	347.2	550.8	347.2	443.5	550.8	347.2	443.5	550.8	347.2	550.8	347.2	550.8	
SEGMENT 2	DRIVING HAMMER TYPE	SEE NOTE 4		BSP HA 40	IHC S-750	JUNTTAN HHK 25S	IHC S-600	JUNTTAN HHK 25S	IHC S-600	BSP HA 40	IHC S-750	BSP HA 40	IHC S-600	IHC S-750	BSP HA 40	IHC S-600	IHC S-750	BSP HA 40	IHC S-750			
	NO OF BLOWS/PILE			1000	750	10000	3800	10000	3800	3500	2100	3500	4400	2100	3500	4400	2100	700	500	SEE NOTE 4		
	HAMMER ENERGY (k-ft)			347.2	550.8	271.2	443.5	271.2	443.5	347.2	550.8	347.2	443.5	550.8	347.2	443.5	550.8	347.2	550.8			
	PILECAP THICKNESS (ft)	9		9		15		15		12		23			23			9		9		

LEGEND:

- (01) ORGANIC SILTY CLAY : SOFT DARK GRAY ORGANIC SILTY CLAY, TRACE SHELLS, VEGETATION, WOOD, ROOTS AND PEAT
- (02) ORGANIC SILTY CLAY WITH TRACES OF SAND : SOFT GRAY ORGANIC SILTY CLAY, TRACE FINE SAND, FINE SAND SEAMS AND PARTINGS, PEAT.
- (03) ORGANIC SILTY CLAY WITH SOME SAND : MEDIUM GRAY ORGANIC SILTY CLAY, TRACE TO SOME FINE SAND, SILT, TRACE FINE SAND SEAMS OR POCKETS
- (PT) PEAT : BROWN PEAT
- (S) SAND : MEDIUM COMPACT TO VERY COMPACT FINE TO MEDIUM SAND, SOME SILT, TRACE COARSE SAND AND GRAVEL
- (C) GLACIAL VARVED SILT AND CLAY : MEDIUM GRAY CLAY AND SILT, SOME FINE SAND VARVED WITH MEDIUM RED BROWN CLAYEY SILT, STIFF CLAY, FINE AND SILT PARTINGS
- (T) GLACIAL TILL : VERY COMPACT REDDISH GRAY FINE TO COARSE SAND, SOME GRAVEL TRACE ROCK FRAGMENTS, SILT, GRAY BROWN SILTY CLAY LAYERS AND BOULDERS
- (R) ROCK : INTERMEDIATE TO HARD UNWEATHERED TO SLIGHTLY WEATHERED GRANITIC GNEISS OR SANDSTONE, BLOCKY TO CLOSELY JOINTED, WEATHERED TO IRON STAINED JOINTS

300 0 300 600
SCALE

REV	DATE	DESCRIPTION	BY
3	01/18/12	ECO: APPENDIX A	LB
B	01/18/12	ECO: APPENDIX A	LB

REVISIONS

DRAFT FOR DISCUSSION

TAPPAN ZEE BRIDGE / I-287 CORRIDOR PROJECT

ARUP
ARUP NORTH AMERICA LTD
AN ARUP GROUP OF FIRMS
NEW YORK NY 10036
TELEPHONE 212 229 2600

TITLE OF DRAWING
FOUNDATION DRAWING
LONG SPAN BRIDGE REPLACEMENT
TAPPAN ZEE BRIDGE

New York State Department of Transportation
Thruway Authority

CONTRACT NUMBER	DATE	DRAWING NUMBER
217815	DEC 2011	B-4250

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NYSDOT.stu
1/17/2012 7:28:06 PM kirbyzuchman
...\Bridge\NB\1100\GM\13219-104012 2+ Drawings DESIGN\sheet\dgn\Bridge_DESIGN_long_Span\B-4250.dgn

ALIGNMENT

STYLE	NAME	DESCRIPTION
	AC	CONTROL (CENTERLINE)
	AD_P	DETOUR
	AT_P	TRANSITION CONTROL
BRIDGE		
	BR	RAIL
	BSHT	SHEET PILING
CONTROL		
	CB	BASELINE
	CBPR	BASELINE, PROJECTION
DRAINAGE		
ST	DCP	CULVERT PIPE
ST	DCP_P	CULVERT PIPE (DIR)
	DDG_P	DITCH, GRASS LINED
	DDP_P	DITCH, PAVED INVERT
	DDS_P	DITCH, STONE LINED
	DFL_P	FLOW LINE
	DSSD	SLOTTED DRAIN
ENVIRONMENTAL		
S	EBLHS	BALE, STRAW
	ECT	CURTAIN, TURBIDITY
	EDMC	DAM, COFFER TYPE
	EDMEC_P	DAM, EARTHEN, CHECK
	EDMPC_P	DAM, PREFAB, CHECK
	EDMSC_P	DAM, STONE, CHECK
	EFNS	FENCE, SILT
SV	EFNSV	FENCE, SILT & VEGETATION
	EFNV	FENCE, VEGETATION
WA	EWAA_P	WETLAND, ADJACENT AREA
FW	EWF	WETLAND, FEDERAL
FW SW	EWFS	WETLAND, FEDERAL AND STATE
SW	EWM	WETLAND, MITIGATION AREA
SW	EWS	WETLAND, STATE

LANDSCAPE

STYLE	NAME	DESCRIPTION
	LABL	AREA, BRUSH LINE
	LAHR	AREA, HEDGE ROW
	LAPB	AREA, PLANTING BED
	LAWA	AREA, WOODED AREA OUTLINE
	LAWE	AREA, WATERS EDGE
	LCUT_P	CUT LIMIT
	LFILL_P	FILL LIMIT
	LFNC	FENCE
	LTRC	TREE ROW, CONIFEROUS
	LTRD	TREE ROW, DECIDUOUS
	LWA	WALL, H PILE
	LWR	WALL, RETAINING
	LWS	WALL, STONE

ROW MAPPING

	MDL	DEED LINE
PE	MEE	EASEMENT, EXISTING
PE	MEP_P	EASEMENT, PERMANENT
APE	MEPA_P	EASEMENT, PERMANENT, APPROX.
TE	MET_P	EASEMENT, TEMPORARY
ATE	META_P	EASEMENT, TEMPORARY, APPROX.
FEE	MF_P	FEE ACQUISITION, W/ ACCESS
AFEE	MFA_P	FEE ACQUISITION, APPROXIMATE
	MFS_P	FEE ACQUISITION, SHAPE
FEE W/OA	MFWOA_P	FEE ACQUISITION, W/O ACCESS
	MHA	HISTORICAL, ACQUISITION
HB	MHB	HIGHWAY BOUNDARY
AHB	MHBA	HIGHWAY BOUNDARY, APPROX.
HWBW	MHBW	HWY BOUNDARY, FACE OF WALL
HB W/OA	MHBWOA	HIGHWAY BOUNDARY, W/O ACCESS
	MJC	JURISDICTION, CITY
	MJCY	JURISDICTION, COUNTY
	MJHD	JURISDICTION, HISTORIC DISTRICT
	MJLL	JURIS., %GREAT, MILITARY% LOT LINE
	MJN	JURISDICTION, NATION
	MJPB	JURISDICTION, PUBLIC LANDS
	MJS	JURISDICTION, STATE
	MJT	JURISDICTION, TOWN
	MJV	JURISDICTION, VILLAGE
	MPL	PROPERTY LOT LINE
	MPLA	PROPERTY LOT LINE, APPROXIMATE
	MSL	SUB LOT LINE

ROADWAY

STYLE	NAME	DESCRIPTION
CZ	RCZ_P	CLEAR ZONE
	RG	GUIDE RAIL, MISCELLANEOUS
	RGB	GUIDE RAIL, BOX BEAM
	RGBM	GUIDE RAIL, BOX BEAM, MEDIAN
	RGC	GUIDE RAIL, CABLE
	RGCB	GUIDE RAIL, CONCRETE BARRIER
	RGP_P	GUIDE POST
	RGW	GUIDE RAIL, W BEAM
	RGWM	GUIDE RAIL, W BEAM, MEDIAN
	RPB	PARKING BUMPER
	RRC	RAIL ROAD, CATENARY
	RRER	RAIL ROAD, 3RD RAIL
RRPLS_P	RRPLS_P	RAIL, PHOTO, LARGE SCALE
RRPSS	RRPSS	RAIL, PHOTO, SMALL SCALE
	RRS	RUMBLE STRIP
RRSLS_P	RRSLS_P	RAIL SURVEY, LARGE SCALE
RRSSS	RRSSS	RAIL SURVEY, SMALL SCALE

SIGNS

	SBLB	BILLBOARDS
	SM	MULTIPLE POST
	SSO	STRUCTURE, OVERHEAD
	SSOC	STRUCTURE, OVHD. CANTILEVER

STRIPING

	STB+	BROKEN LINE
	STDB+	DOUBLE BROKEN LINE
	STDL+	DOTTED LINE LONG
	STDS+	DOTTED LINE SHORT
	STFB+	FULL BARRIER LINE
	STH+	HATCH LINE
	STPB+	PARTIAL BARRIER LINE
	STRCT	ROUNDABOUT, CAT TRACKS
	STRYL	ROUNDABOUT, YIELD LINE
	STSB	STOP BAR
	STSE+	SOLID, EDGE
	STXL+	X WALK, LADDER LINE
		+ = W (WHITE) OR Y (YELLOW)

TRAFFIC CONTROL

TCSW	TCSW	SIGNAL, SPAN WIRE

TRAFFIC WORK ZONE

	TWZBT_P	BARRIER, TEMPORARY
	TWZBTWL_P	BARRIER, TEMPORARY, W/ WARNING LIGHTS
	TWZCD_P	CHANNELIZING DEVICE
	TWZPMRC_P	PAVEMENT MARKING REMOVAL OR COVERING

UTILITIES

STYLE	NAME	DESCRIPTION
C	UC	CONDUIT, UNDERGROUND
UCH	UCH	CONDUIT, HANGING
OC	UCO	CONDUIT, OVERHEAD
E	UE	ELECTRIC LINE, UNDERGROUND
UEH	UEH	ELECTRIC LINE, HANGING
OE	UEO	ELECTRIC LINE, OVERHEAD
OET	UETO	ELECTRIC TRANSMISSION, OVERHEAD
	USSS	ELECTRIC, SUBSTATIONS
FO	UFO	FIBER OPTIC, UNDERGROUND
UFOH	UFOH	FIBER OPTIC, HANGING
OFO	UFOO	FIBER OPTIC, OVERHEAD
G	UG	GAS, UNDERGROUND
UGH	UGH	GAS, HANGING
OG	UGO	GAS, OVERHEAD
IC	UIC	INFORM CABLE, UNDERGROUND
UICH	UICH	INFORM CABLE, HANGING
O	UO	OIL LINE, UNDERGROUND
UOH	UOH	OIL LINE, HANGING
	UPBP	POLE, BRACE, PUSH BRACE
	UPGW	POLE, GUY WIRE
SA	USA	SANITARY SEWER, UNDERGROUND
USAH	USAH	SANITARY SEWER, HANGING
SAF	USAF	SANITARY SEWER, FORCE MAIN, UGND
SAFH	USAFH	SANITARY SEWER, FORCE MAIN, HANG
T	UT	TELEPHONE, UNDERGROUND
UTH	UTH	TELEPHONE, HANGING
OT	UTO	TELEPHONE, OVERHEAD
CTV	UTV	CABLE TV, UNDERGROUND
UTVH	UTVH	CABLE TV, HANGING
OCTV	UTVO	CABLE TV, OVERHEAD
UU	UUU	UNKNOWN, UNDERGROUND
UUH	UUH	UNKNOWN, HANGING
OUU	UUO	UNKNOWN, OVERHEAD
W	UW	WATER LINE, UNDERGROUND
UWH	UWH	WATER LINE, HANGING
OW	UWO	WATER LINE, OVERHEAD

B/HWY SERIES DRAWINGS - ADDITIONAL LEGENDS

	CRT AT GRADE
	CRT UNDERGROUND
	PEDESTRIAN CROSSING
	PROPOSED RETAINING WALL
	PROPOSED NOISE BARRIER
	PROPOSED JERSEY BARRIER
	IMPACTED PROPERTY
CRT	COMMUTER RAIL TRANSIT
BRT	BUS RAPID TRANSIT
HOV	HIGH OCCUPANCY VEHICLES
GP	GENERAL PURPOSE LANES
HB	PROPOSED HIGHWAY BOUNDARY

ALIGNMENT

CELL	NAME	DESCRIPTION
	ACC	CENTER OF CURVATURE
	ACOGO	COGO
	ACS	CURVE TO SPIRAL
	ADPL_P	DETOUR, POINT OF INTERSECT.
	ADPL_P	DETOUR, POINT ON LINE
	AEQN	EQUATION
	AEQNAHD	EQUATION AHEAD
	AEQNBK	EQUATION BACK
	AEVT	EVENT STATION
	APC	POINT OF CURVATURE
	APCC	POINT OF COMPOUND CURVATURE
	API	POINT OF INTERSECTION
	APOB	POINT OF BEGINNING
	APOC	POINT OF CURVATURE
	APOE	POINT OF END
	APOL	POINT ON LINE
	APOS	POINT ON SPIRAL
	APOT	POINT ON TANGENT
	APOVC	POINT ON VERTICAL CURVE
	APOVT	POINT ON VERTICAL TANGENT
	APORC	POINT ON REVERSE CURVE
	APT	POINT OF TANGENCY
	APVC	POINT OF VERTICAL CURVATURE
	APVCC	POINT OF VERT. CMPND CURVE
	APVI	POINT OF VERT. INTERSECTION
	APVRC	POINT OF VERT. REVERSE CURVE
	APVT	POINT OF VERTICAL TANGENCY
	ASC	SPIRAL TO CURVE
	ASPI	SPIRAL POINT OF INTERSECTION
	ASTS	SPIRAL TO SPIRAL
	AST	SPIRAL TO TANGENT
	ATS	TANGENT TO SPIRAL
	AVEVT	VERTICAL EVENT POINT
	AVHIGH	VERTICAL HIGH POINT
	AVLOW	VERTICAL LOW POINT

BRIDGE

	BSC	BRIDGE, SCUPPER

CONTROL

	CBP	BASELINE, POINT
	CBPOL	BASELINE, POINT ON LINE
	CBSP	BASELINE, SPUR POINT
	CBTP	BASELINE, TIE POINT
	CPBM	BENCHMARK
	CPH	POINT, HORIZ. PHOTOGRAMMETRY
	CPSM	POINT, SURVEY MARKER, PERM.
	CPSV	POINT, VERT., PHOTOGRAMMETRY

CELL	NAME	DESCRIPTION
	DINV	INVERT
	DS	STRUCTURE, RECTANGULAR
	DSI	STRUCTURE, INVERT
	DSM	STRUCTURE, MANHOLE
DSMTXX_P	DSMTXX_P	STRUCTURE, MANHOLE, TYPE "XX" "XX" = 48, 60, 72, 96
	DSR	STRUCTURE, ROUND
DST"X"CB P	DST"X"CB P	STRUCTURE, RECT., WITH CURB TYPE "X" "X" = F, G, N, O, P, R
DST"X" P	DST"X" P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U

ENVIRONMENTAL

CELL	NAME	DESCRIPTION
CULV	EIOP_P	STR., INLET, OUTLET PROT.
GB	EIPGB_P	STR., INLET PROT., GRAVEL BAG
HAY/STRAW	EIPHS_P	STR., INLET PROT., HAY/STRAW
PREFAB	EIPP_P	STR., INLET PROT., PREFAB.
SF	EIPSF_P	STR., INLET PROT., SILT FENCE
	ERCB	RISER, CONCRETE BOX
	ETRS_P	TRAP, SEDIMENT
	EWFG	WETLAND FLAG

GEOTECHNICAL

CELL	NAME	DESCRIPTION
	GDH	DRILL HOLE

LANDSCAPE

CELL	NAME	DESCRIPTION
	LELS	ELEVATION, SPOT
	LFP	FLAG POLE
	LMB	MAILBOX
	LPB	PAPER BOX
	LPST	POST, SINGLE
	LRB	ROCK, BOULDER
	LSHC	SHRUB, CONIFEROUS
	LSHD	SHRUB, DECIDUOUS
	LTC	TREE, CONIFEROUS
	LTD	TREE, DECIDUOUS
	LTS	TREE, STUMP
LTW P	LTW P	TREE, WELL OR WALL
	LUKP	UNKNOWN POINT

ITS

CELL	NAME	DESCRIPTION
	IANT P	ANTENNAS
	IASCTS	ACCOU. SPEED/COUNT SNSR.S
	ICABPAD	CABINET & PAD
	ICCTV	CCTV SITE
	ICDPD	CDPD TRANSCEIVER
	ICELLT	CELL PHONE TOWER
	ICJB	CONDUIT JACK OR BORING
	ICNTLCAB	CONTROLLER CABINET
	ICPB	COMMUNICATION PULL BOX
	ICTD	CONDUIT TURNING DOWN
	ICTU	CONDUIT TURNING UP
	ICVTRT	COMM. VEH. ROAD TRANSCEIVER
	IDEFAULT	DEFAULT
EZ	IEZR	E-ZPASS READER
EZ-T	IEZTR	TRANSMITTAL READER
	IFOXCAB	FIBER OPTIC X-CONNECT CABINET
	IFUSSPL	FUSION SPLICE
	IHARADV	HAR ADVISORY SIGN
	IHARST	HAR SITE
	ILC	LOAD CENTER
	IMECSPL	MECHANICAL SPLICE
PM	IMSCS	PORT. SPEED & COUNT SENSOR
M	IMSCTS	MICRO SPEED & COUNT SENSOR
	IMT	MICROWAVE TRANSCEIVER
VMS	IOVHVMS	PERM. OVERHEAD VMS
PA	IPASCS	PORT. ACCOU. SPD & CNT. SENSOR
	IPEDS	PEDESTRIAN SIGNAL HEAD
	IPSS	PAVEMENT SURFACE SENSOR
PVMS	IPVMS	PERM. VMS
	IRM	RAMP METER
RWIS	IRWIS	ROAD WEATHER INFO. SENSOR
	ISP	SOLAR PANEL
	ISST	SPREAD SPECT. TRANSCEIVER
TX	ITDB	TELEPHONE DEMARCATION BLK
TP	ITP	SUBSURFACE TEMP. PROBE
	IVTRT	VEHICLE TO ROWY TRANSCEIVER
WIM	IWIMD	WEIGHT IN MOTION DETECTOR
	IWVR	WIRELESS VIDEO REPEATER
	IWVRC	WIRELESS VIDEO RECEIVER
	IWVTT	WIRELESS VIDEO TRANSMITTER

ROW MAPPING

CELL	NAME	DESCRIPTION
	MDL1P	DEED LINE, TYPE 1
	MDL2P	DEED LINE, TYPE 2
	MDL3P	DEED LINE, TYPE 3
	MDL4P	DEED LINE, TYPE 4
	MDL5P	DEED LINE, TYPE 5
	MEEP	EASEMENT, EXISTING
	MEPAP_P	EASEMENT, PERM., APPROX.
	MEPP_P	EASEMENT, PERM., BACK LINE
	MEPSP_P	EASEMENT, PERM., SHAPE
	MFAP_P	FEE ACQUISITION, APPROX.
	MFP_P	FEE ACQUISITION, BACK LINE
	MFSP_P	FEE ACQUISITION, SHAPE
	MHBAP	HIGHWAY BNDRY., APPROX.
	MHBCP	HISTORICAL, BLDG. CORNERS
	MHBP	HIGHWAY BNDRY, PT.
	MJCP	PT., JURIS. CITY
	MPBC	PT., BUILDING CORNER
	MPCC	PT., CROSS CUT
	MPDH	PT., DRILL HOLE
	MPF	PT., FENCE LOCATION
	MPIP	PT., IRON PIPE
	MPIR	PT., IRON ROD
	MPM	PT., MONUMENT
	MPMW	PT., MONUMENT, MISC.
	MPN	PT., NAIL
	MPRS	PT., RAILROAD SPIKE
	MPSP	PT., SPIKE
	MPST	PT., STAKE
	MPTW	PT., TREE W/ WIRE
	MPWL	PT., WALL LOCATION

ROW ACQUISITION

CELL	NAME	DESCRIPTION
FEE	MFS_P_T	FEE ACQUISITION
FEE	MEPS_P_T	EASEMENT, PERMANENT
TE	METS_P_T	EASEMENT, TEMPORARY
TE	METS_P_T	OCCUPANCY, TEMPORARY
FEE W/OA	MFS_P_T	FEE ACQUISITION W/O ACCESS

ROADWAY

CELL	NAME	DESCRIPTION
	RES P	ELEVATION, SPOT
	RGA	GUIDE RAIL, ANCHOR
	RGP	GUIDE POST, SINGLE
HP	RHP	HIGH POINT
LP	RLP	LOW POINT
	BRT	BUS RAPID TRANSIT

SIGNS

CELL	NAME	DESCRIPTION
	S	SINGLE POST
	S P	SINGLE POST, PROPOSED
	SB P	BACK TO BACK, PROPOSED
	SDEL	DELINEATORS
SPM	SPM	PARKING METER
SRM	SRM	REFERENCE MARKERS
	SRSC3	SHLD, CTY, 123 DIG.
	SRSC4	SHLD, CTY, 4 DIG.
	SRSCT2	SHLD, CTY TOUR, 1-2 DIG.
	SRSCT4	SHLD, CTY TOUR, 3-4 DIG.
	SRSI	SHLD, INTERSTATE
	SRSN2	SHLD, NATIONAL, 2 DIG.
	SRSN3	SHLD, NATIONAL, 3 DIG.
	SRSS2	SHLD, STATE, 2 DIG.
	SRSS3	SHLD, STATE, 3 DIG.
	SRSS4	SHLD, STATE, 4 DIG.

TRAFFIC CONTROL

CELL	NAME	DESCRIPTION
	TCBJ	BOX, JUNCTION
	TCBP	BOX, PULL BOX
	TCBS	BOX, SPLICE
	TCMC	MICROCOMPUTER CABINET
	TCPP	PED POLE
	TCSH	SIGNAL HEADS
	TCSP	SIGNAL POLE

TRAFFIC WORK ZONE

CELL	NAME	DESCRIPTION
	TWZAP_P	ARROW PANEL
	TWZAPC_P	ARROW PANEL, CAUTION MODE
	TWZAPT_P	ARROW PANEL, TRAILER OR SUPPORT
	TWZBCD_P	BARRICADE (TYPE III)
	TWZCMS_P	CHANGEABLE MESSAGE SIGN (PVMS)
	TWZFLG_P	FLAGGER
	TWZFT_P	FLAG TREE
	TWZIA_P	IMPACT ATTENUATOR / CRASH CUSHION (TEMPORARY)
	TWZLUM_P	LUMINAIRE (TEMPORARY)
	TWZSDT_P	SYMBOL, DIRECTION OF TRAFFIC
	TWZSDTD_P	SYMBOL, DIRECTION OF TEMPORARY TRAFFIC DETOUR
	TWZSGN_P	SIGN (TEMPORARY)
	TWZSIG_P	SIGNAL, TRAFFIC OR PEDESTRIAN (TEMPORARY)
	TWZWL_P	WARNING LIGHT
	TWZWV_P	WORK VEHICLE
	TWZWVA_P	WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR

UTILITIES

CELL	NAME	DESCRIPTION
	UEB	ELECTRIC, BOX
	UEM	ELECTRIC, METER
	UEMH	ELECTRIC, MANHOLE
	UEPT	ELECTRIC, POLE, TRANS.
	UGM	GAS, METER
	UGMH	GAS, MANHOLE
	UGLM	GAS, LINE MARKER
	UGP	GAS/FUEL PUMP
	UGV	GAS, VALVE
	UGVT	GAS, VENT
	ULP	LIGHTING, POLE
	ULPM	LIGHTING, POLE, MEDIAN
	ULPP	LIGHTING, POLE, PED.
	UMFC	MISC. FILLER CAP
	UOLM	OIL, LINE MARKER
	UP	POLE, WITH UTILITY
	UPD	POLE, DEAD (NO UTILITY)
	UPL	POLE, WITH LIGHT
	USMH	SANITARY SEWER MANHOLE
	UTB	TELEPHONE, BOOTH
	UTLM	TELEPHONE, LINE MARKER
	UTMH	TELEPHONE, MANHOLE
	UTVLM	CABLE TV, LINE MARKER
	UTVPB	CABLE TV, PULL BOX
	UUB	UNKNOWN, BOX
	UUJB	UNKNOWN, JUNCTION BOX
	UUM	UNKNOWN, MANHOLE
	UUPB	UNKNOWN, PULL BOX
	UUVL	UNKNOWN, VALVE
	UUVT	UNKNOWN, VENT
	UUW	UNKNOWN, WELL
	UWFH	WATER, FIRE HYDRANT
	UWM	WATER, METER
	UWMH	WATER, MANHOLE
	UWV	WATER, VALVE
	UWW	WATER, WELL

NOTES:
1. THE LEGEND ILLUSTRATES MAPPING FEATURES (EXISTING AND PROPOSED).
2. FEATURES ARE SHOWN AS EITHER LINEAR (ROADWAY GUIDERAIL, ROADWAY SIDEWALK, UTILITY LINES, ETC.) OR POINT (SIGN, UTILITY POLE, ETC.).
3. FEATURES SHOWN ON THE LEGEND AS EXISTING FEATURES ALSO HAVE CORRESPONDING PROPOSED FEATURES.
4. MAPPING FEATURES NOT INCLUDED ON THE LEGEND SHEET DO NOT HAVE A UNIQUE SYMBOLOGY (SUCH AS THE PAVEMENT EDGE, PAVEMENT EDGE OF TRAVEL WAY) AND SHOULD BE LABELED ON THE PLANS.
5. FEATURES SHOWN AT THE HEAVIER WEIGHT ARE PROPOSED ONLY AND DO NOT HAVE CORRESPONDING EXISTING FEATURES.

LONG — LONG SPAN BRIDGE REPLACEMENT

ARUP
Arup USA Inc.
77 Water Street
New York, NY 10005
Tel (212) 896 3000
www.arup.com

Thruway Authority

TAPPAN ZEE
HUDSON RIVER CROSSING
PROJECT

REV	DATE	DESCRIPTION	BY
1	01/18/12	DEIS APPENDIX A ISSUE	JV
0	01/18/12	DEIS APPENDIX A ISSUE	JV

DOCUMENT STATUS: DEIS - APPENDIX A

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

LEGEND

CONTRACT NUMBER 217815

DRAWING NO. B-4299
SHEET NO.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION REGION

FILE NAME = J:\GN-Y\131000\131219-00\12 Drawings DEIS\Sheets\Expedited Bridge DEIS\Long Span\B-4299.dgn
DATE/TIME = 1/17/2012 6:54:18 PM
USER = kirby.sicherman
DESIGN SUPERVISOR MARK ROCHE JOB MANAGER HEMAL PATEL DESIGNED BY LEE GILL CHECKED BY HEMAL PATEL
ESTIMATED BY ADAM FINKIN DRAFTED BY JODY VUKAS CHECKED BY HEMAL PATEL

Appendix A: Project Planning and Development

A-4 Replacement Bridge Alternative Design Criteria

Mainline Design Criteria

Exhibit 3.2.3.2.A Critical Design Elements for I-287			
PIN:	8TZ1.00	NHS (Y/N):	Yes
Route No. & Name:	I-790 & 5,8,12 (North-South Arterial)	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline Urban Interstate
% Trucks:	12.4%	Terrain:	Rolling
ADT:	218,551	Truck Access/Qualifying Hwy.	Qualifying highway

	Design Element	Standard Thruway Criteria Source	Existing Condition	Specific Project Requirement
1	Design Speed (mph)	HDM §2.7.1.1A; NYSTA	60	70
2	Minimum Lane Width (feet)	HDM §2.7.1.1B	11	12, with suitable transition to existing
3	Minimum Shoulder Width (feet) Left Right	HDM §2.7.1.1C, Exhibit 2-2	0	12 on approaches, 20 over-widened left shoulder on westbound bridge, 25 over-widened left shoulder on eastbound bridge for emergency access on bridge 10
4	Minimum Bridge Roadway Width (feet)	BM §2.3.1 Table 2-1	3 lanes each way with one reversible lane totaling 7 lanes	4 lanes each way 12ft with shoulder width stated above in 3. 5th EB lane at approach to Toll Plaza, min 1000ft length with suitable transition
5	Maximum Grade - Bridge [Rolling] Maximum Grade - Approach [Rolling]	HDM §2.7.1.1E, Exhibit 2-2; NYSTA	3.0% 3.0%	1.3% 3.0%
6	Horizontal Curvature, Minimum Radius (feet)	HDM §2.7.1.1F, Exhibit 2-2		2040
7	Maximum Super-elevation Rate	HDM §2.7.1.1G	-	6%. Note superelevation should not be continuous between the two roadway bounds

	Design Element	Standard Thruway Criteria Source	Existing Condition	Specific Project Requirement
8	Minimum Stopping Sight Distance (feet)	HDM §2.7.1.1H, Exhibit 2-2	472	730
9	Minimum Horizontal Clearance (feet) Without Barrier/Rail With Barrier/Rail	HDM §2.7.1.1I	N/A 1ft	15 Not less than shoulder width
10	Minimum Vertical Clearance (feet) Vehicular Bridges Rehabilitation Replacement Pedestrian Bridges OH Sign Structures & Signs	HDM §2.7.1.1J; BM §2.4.1, Table 2-2	14.5 16 17	Existing Bridges, 16.5 Replacement Bridges, 16.5 OH Signs, 17.5
11	Pavement Cross Slope	HDM §2.7.1.1K	2%	2% max
12	Maximum Rollover Between Lanes Edge of Traveled Way	HDM §2.7.1.1L		4% 8%
13	Minimum Level of Service	HDM §2.6.14, §2.7.1.1N, Heavily Dev Urban Area		C
14	Control of Access	HDM §2.7.1.1O	Full	Full
15	Pedestrian Accommodation	NYS Highway Law 1, §3.2; ADAAG	Prohibited	Prohibited
16	Minimum Median Width (feet)	NYSTA DRM	Governed by moveable barrier system	On approaches minimum median width shall be the width of the central barrier plus the adjacent shoulder widths. On the bridge - Governed by Project Requirement 11-Structures
17	Structural Capacity Rehabilitation Replacement Temporary Bridge	HDM §2.7.1.1M; TSDM §2.1; BM §2.6	1950s Design Standards	Governed by Project Requirement 11-Structures
	Additional River Criteria			
18	Minimum Clearance Over Shipping Channel (feet)	U. S. Coast Guard Provisional Requirement	139	U. S. Coast Guard Provisional Requirement: 139 applied 521 feet from the center of the channel

	Design Element	Standard Thruway Criteria Source	Existing Condition	Specific Project Requirement
19	Minimum Navigation Channel Clearance (feet)	U. S. Coast Guard Provisional Requirement	1042	U. S. Coast Guard Provisional Requirement: 1042
20	Turnarounds between Bridge Roadways – Design Vehicle for turning maneuvers		-	One either side of the main span near the landing. Sized as required to accommodate HL-93 Design Vehicle

Ramp Design Criteria

	Design Element	Standard Thruway Criteria Source	Existing Condition	Specific Project Requirement
1	Design Speed (mph)	HDM §2.7.5.2A; NYSTA	25	Match existing
2	Range of Minimum Lane Widths - Case II D Ramps (feet)	HDM §2.7.5.2B, Exhibit 2-9 (Case IID with shoulders)	Varies 12-15	15 to 25 depending on radius, with suitable transition to existing
3	Minimum Shoulder Width (feet) Left Right	NYSTA DRM	Varies 2 - 6	4 10 With suitable transition to existing
4	Minimum Bridge Roadway Width (feet)	HDM §2.7.5.2D; BM §2.3.1, Table 2-1	-	Match ramp width
5	Maximum Grade [Rolling]	HDM §2.7.5.2E, Exhibit 2-10	5%	5%
6	Horizontal Curvature, Min Radius (feet)	HDM §2.7.5.2F, Exhibit 2-10	230	230
7	Maximum Superelevation Rate	HDM §2.7.5.2G	6%	6%
8	Minimum Stopping Sight Distance (feet)	HDM §2.7.5.2H, Exhibit 2-10	200	200
9	Minimum Horizontal Clearance (feet) Left Right	NSYTA DRM HDM §2.7.5.2I, Exhibit 2-10		Shoulder width but not less than 4 left 6 right. Shoulder width plus 4 Under bridge *with suitable transition to existing
10	Min. Vertical Clearance (feet) Vehicular Bridges Rehabilitation* Replacement**	HDM §2.4.5.2J; BM §2.4.1, Table 2-2 (Exempt Interstate^^);	15.13	Existing Bridges, 16.5 Replacement Bridges, 16.5

	Design Element	Standard Thruway Criteria Source	Existing Condition	Specific Project Requirement
	Pedestrian Bridges OH Sign Str. & Signs			OH Signs, 17.5
11	Pavement Cross Slope	HDM §2.7.5.2K	Varies	1.5% min; 2% max
12	Maximum Rollover Between Lanes Edge of Travel Way	HDM §2.7.5.2L	4% 8%	4% 8%
13	Structural Capacity Rehabilitation* Replacement** Temporary Bridge	HDM §2.7.5.2M; TSDM §2.1; BM §2.6	1950s Design Standard	Governed by Project Requirement 11- Structures
14	Minimum Level of Service	HDM §2.7.5.2N	-	C, D Acceptable with documentation
15	Control of Access	HDM §2.7.5.2O	Full	Full
16	Pedestrian Accommodation	HDM §2.7.5.2P; ADAAG		Prohibited

Urban Collector Design Criteria

	Design Element	Standard Criteria Source	Existing Condition	Specific Project Requirement
1	Design Speed (mph)	HDM §2.7.3.2A	30	30
2	Minimum Lane Width (feet) Travel Lane Curbed Curbed Industrial Uncurbed Turning Lane Continuous Median Turning Lane Parking Lane (if Included) Residential Commercial, Industrial	HDM §2.7.3.2B Exhibits 2-6, 2-5 (ADT > 2000) (Truck Volume > 2%)	16 N/A	Match existing N/A
3	Minimum Shoulder Width (feet) Left Curbed Divided Right Curbed, for Bicycle Use Uncurbed	HDM §2.7.3.2C, Exhibits 2-6, 2-5 (ADT > 2000)	2 7	Match existing
4	Minimum Bridge Roadway Width (feet)	HDM §2.7.3.2D; BM §2.3.1 Table 2-1		Match approach roadway
5	Maximum Grade [Rolling]	HDM §2.7.3.2E, Exhibit 2-6	9%	9%
6	Horizontal Curvature, Minimum Radius @e=4% (feet)	HDM §2.7.3.2F, Exhibit 2-6	Non Standard	125 Non-Standard
7	Maximum Superelevation Rate	HDM §2.7.3.2G	4%	4%
8	Minimum Stopping Sight Distance (feet)	HDM §2.7.3.2H, Exhibit 2-6	200	125 Non-Standard
9	Minimum Horizontal Clearance (feet) Without Barrier/Rail With Barrier/Rail	HDM §2.7.3.2I	1.5	1.5
10	Minimum Vertical Clearance (feet)	HDM §2.7.3.2J; BM §2.4.1, Table 2-2	14.5	14.5
11	Pavement Cross Slope	HDM §2.7.3.2K	2%	1.5% min; 2% max 1.5% to 5% parking lanes
12	Maximum Rollover Between Lanes At edge of Traveled Way	HDM §2.7.3.2L	4% 8%	4% 8%
13	Structural Capacity Rehabilitation Replacement Temporary Bridge	HDM §2.7.3.2M; BM §2.6	1950's Design Standards	Governed by Project Requirement 11- Structures
16	Pedestrian Accommodation (feet)	HDM §2.7.3.2N;	7	7

	Design Element	Standard Criteria Source	Existing Condition	Specific Project Requirement
		HDM Ch 18, ADAAG		Sidewalk

The Urban Collector Specific Project Requirement listed above are applicable to South Broadway and River Road in Rockland County, and if affected, South Broadway in Westchester County.

Maintenance Ramps and Roads Design Criteria

	Design Element	Existing Condition	Maintenance Roads	Maintenance Ramps
1	Design Vehicle	Single Unit Truck	Single Unit Truck	Single Unit Truck
2	Minimum Width (feet)	16	20	20
3	Maximum Grade	20%	10%	10%
4	Minimum Vertical Curve Length (feet)	80	100	100
5	Minimum radius at mainline junction	Not known	NA	Such that design vehicle path does not intrude beyond the right-most mainline lane
6	Sight distance (feet)	Not known	125	200 min. along River Rd.
7	Traffic control	Stops at termini No Left Turn at mainline	Stops at intersections	Stops at termini No Left Turn at mainline

Appendix A: Project Planning and Development

A-5 Non-Standard Feature Justification

NON-STANDARD FEATURE JUSTIFICATION
(in accordance with HDM §2.8)

PIN:	1721.51	NHS (Y/N):	Yes
Route No. & Name:	I-287 WB Approach to W. Broadway	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature

Type of Feature (e.g., Lane Width):	Lane Width		
Location:	I-287 WB Approach to W. Broadway (STA 828+13 to STA 842+51)		
Standard Value:	12 ft	Design Speed:	70 mph
Existing Value:	10.5 ft	Recommended Speed:	70 mph
Proposed Value:	10.5 ft	Recommended Speed:	70 mph

b. - Accident Analysis

Current Accident Rate:	
Statewide Rate:	0.07/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates

Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):

Lane width is tapered to match existing lane widths at the project limit.

e. - Compatibility with Adjacent Segments & Future Plans:

Meets project objective of tying in the works without affecting Interchange 10 in Rockland and the Rt 9 South Broadway Bridge in Westchester

f. - Other Factors (e.g., Social, Economic & Environmental):

Minimizes property impacts adjacent to the I-287

g. - Proposed Treatment (i.e., Recommendation):

Tying to the existing lanes widths prior to Interchange 10 means no alterations need to be made to the Interchange ramps or the bridges

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION
(in accordance with HDM §2.8)

PIN:	1721.51	NHS (Y/N):	Yes
Route No. & Name:	I-287 WB Approach to Cornelison Ave.	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature

Type of Feature (e.g., Lane Width):	Shoulder Width		
Location:	I-287 WB Approach to W. Broadway (STA 828+13 to STA 836+66)		
Standard Value:	12 ft	Design Speed:	70 mph
Existing Value:	7 ft	Recommended Speed:	70 mph
Proposed Value:	7 ft	Recommended Speed:	70 mph

b. - Accident Analysis

Current Accident Rate:	
Statewide Rate:	0.07/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates

Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):

Shoulder width is tapered to match existing shoulder widths at the project limit.

e. - Compatibility with Adjacent Segments & Future Plans:

Meets project objective of tying in the works without affecting Interchange 10 in Rockland and the Rt 9 South Broadway Bridge in Westchester

f. - Other Factors (e.g., Social, Economic & Environmental):

Minimizes property impacts adjacent to the I-287

g. - Proposed Treatment (i.e., Recommendation):

Tying in to the existing lanes widths prior to Interchange 10 means no alterations need to be made to the Interchange ramps or the bridges

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:	1721.51	NHS (Y/N):	Yes
Route No. & Name:	I-287 WB Off TZB Bridge	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Shoulder Width		
Location:	I-287 WB Maintenance Ramp TZB intersection with River Road (STA 836+66 to STA 842+51)		
Standard Value:	12 ft	Design Speed:	70 mph
Existing Value:	6-7 ft	Recommended Speed:	70 mph
Proposed Value:	7ft-10ft	Recommended Speed:	70 mph

b. - Accident Analysis	
Current Accident Rate:	
Statewide Rate:	1.10/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates	
Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):
Shoulder width is tapered to match existing shoulder widths at the project limit.
e. - Compatibility with Adjacent Segments & Future Plans:
The Thruways existing ramp is actually of a lesser standard so the new ramp will improve conditions.
f. - Other Factors (e.g., Social, Economic & Environmental):
Minimizes property impacts adjacent to the I-287
g. - Proposed Treatment (i.e., Recommendation):
Tying the WB maintenance ramp within the available space minimizes impacts to adjacent properties.

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION
(in accordance with HDM §2.8)

PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 WB Tappan Zee Bridge	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature

Type of Feature (e.g., Lane Width):	Shoulder width - right		
Location:	WB Tappan Zee Bridge (STA 842+51 to STA 1009+58)		
Standard Value:	12ft	Design Speed:	70 mph
Existing Value:	0ft	Recommended Speed:	70 mph
Proposed Value:	10ft	Recommended Speed:	70 mph

b. - Accident Analysis

Current Accident Rate:	
Statewide Rate:	1.10/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates

Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):

As per NYSDOT's instructions, 10ft shoulder to be provided on the right side of the bridge.

e. - Compatibility with Adjacent Segments & Future Plans:

Allows enough space for drainage puddle width

f. - Other Factors (e.g., Social, Economic & Environmental):

g. - Proposed Treatment (i.e., Recommendation):

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION
(in accordance with HDM §2.8)

PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 WB Off Tappan Zee Bridge	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature

Type of Feature (e.g., Lane Width):	Shoulder width - left		
Location:	I-287 WB Tappan Zee Bridge (STA 828+13 to STA 839+00)		
Standard Value:	12ft	Design Speed:	70 mph
Existing Value:	0ft	Recommended Speed:	70 mph
Proposed Value:	24ft	Recommended Speed:	70 mph

b. - Accident Analysis

Current Accident Rate:	
Statewide Rate:	0.07/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates

Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):

As per NYSDOT's instructions, 24ft shoulder to be provided on the left side of bridge.

e. - Compatibility with Adjacent Segments & Future Plans:

f. - Other Factors (e.g., Social, Economic & Environmental):

g. - Proposed Treatment (i.e., Recommendation):

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION
(in accordance with HDM §2.8)

PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 EB New York State Thruway Toll Road	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature

Type of Feature (e.g., Lane Width):	Shoulder width-left		
Location:	I-287 EB New York State Thruway Toll Road (STA 1015+40 to STA 1018+35)		
Standard Value:	12ft	Design Speed:	70 mph
Existing Value:	0ft	Recommended Speed:	70 mph
Proposed Value:	6ft	Recommended Speed:	70 mph

b. - Accident Analysis

Current Accident Rate:	
Statewide Rate:	1.10/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates

Cost to Fully Meet Standards:	$ 3million to rebuild the Rt 9 South Broadway Bridge
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):

Shoulder width is tapered to match existing shoulder widths at the project limit.

e. - Compatibility with Adjacent Segments & Future Plans:

f. - Other Factors (e.g., Social, Economic & Environmental):

g. - Proposed Treatment (i.e., Recommendation):

Tying to the existing lanes widths prior to the Rt 9 South Broadway Bridge in Westchester mean no alterations need to be made to the existing bridge.

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION
(in accordance with HDM §2.8)

PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 EB New York State Thruway Toll Road	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature

Type of Feature (e.g., Lane Width):	Shoulder width-right		
Location:	I-287 EB New York State Thruway Toll Road & South Broadway (STA 1015+89 to STA 1018+66)		
Standard Value:	12ft	Design Speed:	70 mph
Existing Value:		Recommended Speed:	70 mph
Proposed Value:	0ft	Recommended Speed:	70 mph

b. - Accident Analysis

Current Accident Rate:	
Statewide Rate:	1.10/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates

Cost to Fully Meet Standards:	$ 3million to rebuild the Rt 9 South Broadway Bridge
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):

Mitigation consisting of no shoulder warning signs. Full 12ft shoulder maintained east of South Broadway bridge.

e. - Compatibility with Adjacent Segments & Future Plans:

Full width shoulder is not possible due to the existing Rt 9 South Broadway Bridge in Westchester. The shoulder width has been reduced as per NYDOT instruction.

f. - Other Factors (e.g., Social, Economic & Environmental):

g. - Proposed Treatment (i.e., Recommendation):

Tying to the existing lanes widths prior to the Rt 9 South Broadway Bridge in Westchester mean no alterations need to be made to the existing bridge.

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 WB Off Tappan Zee Bridge	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Stopping Stop Distance		
Location:	I-287 WB Off Tappan Zee Bridge (STA 836+86 to STA 842+51)		
Standard Value:	730ft	Design Speed:	70 mph
Existing Value:	600ft	Recommended Speed:	70 mph
Proposed Value:	571ft	Recommended Speed:	70 mph

b. - Accident Analysis	
Current Accident Rate:	
Statewide Rate:	0.07/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates	
Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):	
	Required to fit re-aligned highway within highway boundary with minimal land take and property impact

e. - Compatibility with Adjacent Segments & Future Plans:	

f. - Other Factors (e.g., Social, Economic & Environmental):	
	Minimizes land take and property impacts

g. - Proposed Treatment (i.e., Recommendation):	
	Tying in to the existing lanes widths prior to Interchange 10 means no alterations need to be made to the Interchange ramps or the bridges

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 WB Tappan Zee Bridge	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Stopping Stop Distance		
Location:	I-287 WB Tappan Zee Bridge (STA 842+51 to STA 871+29)		
Standard Value:	730ft	Design Speed:	70 mph
Existing Value:	600ft	Recommended Speed:	70 mph
Proposed Value:	586ft	Recommended Speed:	70 mph

b. - Accident Analysis	
Current Accident Rate:	
Statewide Rate:	0.07/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates	
Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):	
	Required to fit re-aligned highway within highway boundary with minimal land take and property impact

e. - Compatibility with Adjacent Segments & Future Plans:	

f. - Other Factors (e.g., Social, Economic & Environmental):	
	Minimizes land take and property impacts

g. - Proposed Treatment (i.e., Recommendation):	
	Tying in to the existing lanes widths prior to Interchange 10 means no alterations need to be made to the Interchange ramps or the bridges

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 WB @ S. Broadway Bridge	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Stopping Stop Distance		
Location:	I-287 WB Toll Plaza Approach @ Rt 9 South Broadway Bridge (Westchester) (STA 1015+29 to STA 1018+66)		
Standard Value:	730ft	Design Speed:	70 mph
Existing Value:	472ft	Recommended Speed:	70 mph
Proposed Value:	571ft	Recommended Speed:	70 mph

b. - Accident Analysis	
Current Accident Rate:	
Statewide Rate:	1.10/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates	
Cost to Fully Meet Standards:	$3 million to rebuild the Rt 9 South Broadway Bridge
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):	
	Required to fit re-aligned highway within highway boundary with minimal land take and property impact

e. - Compatibility with Adjacent Segments & Future Plans:	

f. - Other Factors (e.g., Social, Economic & Environmental):	

g. - Proposed Treatment (i.e., Recommendation):	
	Tying to the existing lanes widths prior to the Rt 9 South Broadway Bridge in Westchester mean no alterations need to be made to the existing bridge.

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION
(in accordance with HDM §2.8)

PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 EB Tappan Zee Bridge Approach	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature

Type of Feature (e.g., Lane Width):	Stopping Stop Distance		
Location:	I-287 EB Bridge Approach (STA 835+39 to STA 858+61)		
Standard Value:	730ft	Design Speed:	70 mph
Existing Value:	385ft	Recommended Speed:	70 mph
Proposed Value:	599ft	Recommended Speed:	70 mph

b. - Accident Analysis

Current Accident Rate:	
Statewide Rate:	0.05/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates

Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):

Required to fit re-aligned highway within highway boundary with minimal land take and property impact

e. - Compatibility with Adjacent Segments & Future Plans:

f. - Other Factors (e.g., Social, Economic & Environmental):

g. - Proposed Treatment (i.e., Recommendation):

Tying in to the existing lanes widths prior to Interchange 10 means no alterations need to be made to the Interchange ramps or the bridges

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 EB to Tappan Zee Bridge	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Stopping Stop Distance		
Location:	I-287 EB to Tappan Zee Bridge (STA 858+61 to STA 871+29)		
Standard Value:	730ft	Design Speed:	70 mph
Existing Value:	385ft	Recommended Speed:	70 mph
Proposed Value:	629ft	Recommended Speed:	70 mph

b. - Accident Analysis	
Current Accident Rate:	
Statewide Rate:	0.05/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates	
Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):	
	Required to fit re-aligned highway within highway boundary with minimal land take and property impact

e. - Compatibility with Adjacent Segments & Future Plans:	

f. - Other Factors (e.g., Social, Economic & Environmental):	

g. - Proposed Treatment (i.e., Recommendation):	
	Tying in to the existing lanes widths prior to Interchange 10 means no alterations need to be made to the Interchange ramps or the bridges

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 EB Off Tappan Zee Bridge	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Stopping Stop Distance		
Location:	I-287 EB Off Tappan Zee Bridge (STA 968+52 to STA 983+00)		
Standard Value:	730ft	Design Speed:	70 mph
Existing Value:	440ft	Recommended Speed:	70 mph
Proposed Value:	569ft	Recommended Speed:	70 mph

b. - Accident Analysis	
Current Accident Rate:	
Statewide Rate:	0.07/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates	
Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):
Required to fit re-aligned highway within highway boundary with minimal land take and property impact

e. - Compatibility with Adjacent Segments & Future Plans:

f. - Other Factors (e.g., Social, Economic & Environmental):
In order to complete the tie in to the Toll Plaza, and to meet the temporary staging, the highway alignment is constrained from both the Rockland and Westchester approaches, and these constraints combine to yield a reduction in Stopping Sight Distance. Whilst the revised distance is less than the standard value, it is an improvement on the existing value.

g. - Proposed Treatment (i.e., Recommendation):

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 EB Toll Plaza Approach	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Stopping Stop Distance		
Location:	I-287 EB Toll Plaza Approach (STA 983+00 to STA 995+00)		
Standard Value:	730ft	Design Speed:	70 mph
Existing Value:	440ft	Recommended Speed:	70 mph
Proposed Value:	617ft	Recommended Speed:	70 mph

b. – Accident Analysis	
Current Accident Rate:	
Statewide Rate:	0.05/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. – Cost Estimates	
Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. – Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):
Required to fit re-aligned highway within highway boundary with minimal landtake and property impact

e. – Compatibility with Adjacent Segments & Future Plans:

f. – Other Factors (e.g., Social, Economic & Environmental):
In order to complete the tie in to the Toll Plaza, and to meet the temporary staging, the highway alignment is constrained from both the Rockland and Westchester approaches, and these constraints combine to yield a reduction in Stopping Sight Distance. Whilst the revised distance is less than the standard value, it is an improvement on the existing value.

g. – Proposed Treatment (i.e., Recommendation):

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 EB Westchester South Broadway Bridge Approach	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. – Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Stopping Stop Distance		
Location:	I-287 EB Westchester South Broadway Bridge Approach (STA 1011+34 to STA 1018+34)		
Standard Value:	730ft	Design Speed:	70 mph
Existing Value:	618ft	Recommended Speed:	70 mph
Proposed Value:	677ft	Recommended Speed:	70 mph

b. – Accident Analysis	
Current Accident Rate:	
Statewide Rate:	1.10/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. – Cost Estimates	
Cost to Fully Meet Standards:	$ 3million to rebuild the Rt 9 South Broadway Bridge
Cost(s) For Incremental Improvements:	N/A

d. – Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):	
	Required to fit re-aligned highway within highway boundary with minimal land take and property impact

e. – Compatibility with Adjacent Segments & Future Plans:	

f. – Other Factors (e.g., Social, Economic & Environmental):	

g. – Proposed Treatment (i.e., Recommendation):	
	Tying to the existing lanes widths prior to the Rt 9 South Broadway Bridge in Westchester mean no alterations need to be made to the existing bridge.

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 EB @ Westchester S. Broadway Bridge	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. – Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Minimum Horizontal Clearance		
Location:	I-287 EB at Westchester South Broadway Bridge (STA 1018+17 to STA 1019+26)		
Standard Value:	Not Less than shoulder	Design Speed:	70 mph
Existing Value:		Recommended Speed:	70 mph
Proposed Value:	0ft	Recommended Speed:	70 mph

b. - Accident Analysis	
Current Accident Rate:	
Statewide Rate:	1.10/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates	
Cost to Fully Meet Standards:	$ 3million to rebuild the Rt 9 South Broadway Bridge
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):
Mitigation consisting of no shoulder warning signs. Full 12ft shoulder maintained east of South Broadway bridge.

e. - Compatibility with Adjacent Segments & Future Plans:

f. - Other Factors (e.g., Social, Economic & Environmental):

g. - Proposed Treatment (i.e., Recommendation):
Tying to the existing lanes widths prior to the Rt 9 South Broadway Bridge in Westchester mean no alterations need to be made to the existing bridge.

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 Westchester South Broadway W/B Merge	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Ramp
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Horizontal Curvature		
Location:	Westchester South Broadway W/B Merge (STA 3+47 to STA 5+86)		
Standard Value:	230ft	Design Speed:	30 mph
Existing Value:		Recommended Speed:	30 mph
Proposed Value:	210ft	Recommended Speed:	30 mph

b. – Accident Analysis	
Current Accident Rate:	
Statewide Rate:	0.05/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. – Cost Estimates	
Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. – Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):
Matches existing radius. Ramp to be rebuilt at current location within the highway boundary, with no property impact.

e. – Compatibility with Adjacent Segments & Future Plans:

f. – Other Factors (e.g., Social, Economic & Environmental):

g. – Proposed Treatment (i.e., Recommendation):

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	I-287 Westchester South Broadway W/B Merge	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Ramp
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Yes

a. – Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Stopping Sight Distance		
Location:	Westchester South Broadway W/B Merge (STA 3+47 to STA 5+86)		
Standard Value:	200ft	Design Speed:	30 mph
Existing Value:		Recommended Speed:	30 mph
Proposed Value:	175ft	Recommended Speed:	30 mph

b. - Accident Analysis	
Current Accident Rate:	
Statewide Rate:	0.05/mvm**
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates	
Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):
Matches existing Stopping Sight Distance. Ramp to be rebuilt at current location within the highway boundary, with no property impact.

e. - Compatibility with Adjacent Segments & Future Plans:

f. - Other Factors (e.g., Social, Economic & Environmental):

g. - Proposed Treatment (i.e., Recommendation):

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	South Broadway (Rockland) STA 2+28 to STA 3+49	Functional Class:	Urban Collector
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	0.984	Terrain:	Rolling
ADT (ETC+30):	3,075	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Horizontal Curvature		
Location:	South Broadway (Rockland) (STA 2+28 to STA 3+49)		
Standard Value:	250ft	Design Speed:	30 mph
Existing Value:		Recommended Speed:	30 mph
Proposed Value:	140ft	Recommended Speed:	30 mph

b. - Accident Analysis	
Current Accident Rate:	
Statewide Rate:	
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates	
Cost to Fully Meet Standards:	2 additional properties would need to be displaced to meet full standards
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):	
	Matches existing Stopping Sight Distance. Road to be rebuilt near to current location within the highway boundary, with minimal property impact.

e. - Compatibility with Adjacent Segments & Future Plans:	

f. - Other Factors (e.g., Social, Economic & Environmental):	

g. - Proposed Treatment (i.e., Recommendation):	
	Additional signage to be provided on the approach to the curve

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	South Broadway (Rockland) STA 6+62 to STA 7+11	Functional Class:	Urban Collector
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	0.984	Terrain:	Rolling
ADT (ETC+30):	3,075	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Horizontal Curvature		
Location:	South Broadway (STA 6+62 to STA 7+11)		
Standard Value:	250ft	Design Speed:	30 mph
Existing Value:		Recommended Speed:	30 mph
Proposed Value:	117.5ft	Recommended Speed:	30 mph

b. - Accident Analysis	
Current Accident Rate:	
Statewide Rate:	
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates	
Cost to Fully Meet Standards:	2 additional properties would need to be displaced to meet full standards
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):	
	Matches existing Stopping Sight Distance. Road to be rebuilt near to current location within the highway boundary, with minimal property impact.

e. - Compatibility with Adjacent Segments & Future Plans:	

f. - Other Factors (e.g., Social, Economic & Environmental):	

g. - Proposed Treatment (i.e., Recommendation):	
	Additional signage to be provided on the approach to the curve

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	South Broadway (Rockland) STA 2+28 to STA 3+44	Functional Class:	Urban Collector
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	0.984	Terrain:	Rolling
ADT (ETC+30):	3,075	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Stopping Sight Distance		
Location:	South Broadway (STA 2+23 to STA 3+44)		
Standard Value:	200ft	Design Speed:	30 mph
Existing Value:		Recommended Speed:	30 mph
Proposed Value:	109ft	Recommended Speed:	30 mph

b. - Accident Analysis	
Current Accident Rate:	
Statewide Rate:	
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates	
Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):	
	Matches existing Stopping Sight Distance. Road to be rebuilt near to current location within the highway boundary, with minimal property impact.

e. - Compatibility with Adjacent Segments & Future Plans:	

f. - Other Factors (e.g., Social, Economic & Environmental):	
	2 additional properties would need to be displaced to meet full standards

g. - Proposed Treatment (i.e., Recommendation):	
	Additional signage to be provided on the approach to the curve

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:		NHS (Y/N):	Yes
Route No. & Name:	South Broadway (Rockland) STA 5+75 to STA 7+60	Functional Class:	Urban Collector
Project Type:	Reconstruction	Design Class:	Mainline
% Trucks:	0.984	Terrain:	Rolling
ADT (ETC+30):	3,075	Truck Access/Qualifying Hwy.	Yes

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Stopping Sight Distance		
Location:	South Broadway (STA 5+75 to STA 7+60)		
Standard Value:	200ft	Design Speed:	30mph
Existing Value:		Recommended Speed:	30 mph
Proposed Value:	177ft	Recommended Speed:	30 mph

b. - Accident Analysis	
Current Accident Rate:	
Statewide Rate:	
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	

c. - Cost Estimates	
Cost to Fully Meet Standards:	
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):	
	Matches existing Stopping Sight Distance. Road to be rebuilt near to current location within the highway boundary, with minimal property impact.

e. - Compatibility with Adjacent Segments & Future Plans:	

f. - Other Factors (e.g., Social, Economic & Environmental):	
	2 additional properties would need to be displaced to meet full standards

g. - Proposed Treatment (i.e., Recommendation):	
	Additional signage to be provided on the approach to the curve

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.
** The units are accidents per million of vehicles-miles.