

September 20, 2019

VIA EMAIL

Luly E. Massaro, Commission Clerk
State of Rhode Island
Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

*In Re: Narragansett Bay Commission
Docket No. 4944*

Dear Ms. Massaro:

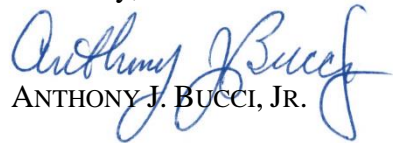
Attached please find the revised plans from Waterman Engineering which have incorporated all the revisions requested by the Division's consultant, Pare Corporation, with one exception related to bullet point 8 under Summary of Findings of Pare Corporation's August 6, 2019 Memorandum. Providence & Worcester Railroad, recommended against the proposed requirement as it is non-standard equipment. Pare Corporation was provided with the revised plans on August 23, 2019 and the Division was provided with a copy on August 27, 2019. On August 29, 2019, Kevin Viveiros, Vice President of Pare Corporation stated in an email that Pare Corporation had "no objection to the modification/suggestions G&W/P&W make to the plans", a copy of said email is attached hereto and incorporated by reference herein.

If the PUC needs full size paper copies of the plans, please let me know the number of copies and I will provide them.

Please make this correspondence and its attachments part of the record.

If you have any questions regarding this matter, please call me.

Sincerely,



ANTHONY J. BUCCI, JR.

Attachments

cc. Leo J. Wold, Esq.
Margaret L. Hogan, Esq.
Kevin Lynch
Ken McCarthy
Jennifer Harrington, Esq.

NBC - PUC - Letter to Luly Massaro of PUC

Anthony Bucci Jr

From: Kevin Viveiros <kviveiros@parecorp.com>
Sent: Thursday, August 29, 2019 9:52 AM
To: richard@watermanengineering.net; Anthony Bucci Jr
Cc: Amy Archer; McCarthy, Ken (DPUC); 'Wold, Leo (DPUC)'
Subject: RE: Docket No. 4944

Follow Up Flag: Follow up
Flag Status: Flagged

Gentlemen,

Please submit the below through RIPUC. As indicated in the correspondence from RIPUC dated 8/16/19, if all the bullet points are addressed we will have no further comments. We will also take no objection to modification/suggestions G&W/P&W make to the plans.

Sincerely,

Kevin Viveiros, P.E.
Vice President
Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865
401-334-4100 Ext. 4140
401-334-4108 FAX
kviveiros@parecorp.com
www.parecorp.com



From: Rich Lipsitz <richard@watermanengineering.net>
Sent: Friday, August 23, 2019 8:17 AM
To: 'Anthony Bucci Jr' <abucci@buccilaw.com>
Cc: Amy Archer <aarcher@parecorp.com>; 'Mark Sousa' <mark@watermanengineering.net>
Subject: RE: Docket No. 4944

[EXTERNAL]

Anthony / Amy,

Attached is a draft of our revised drawing addressing most of Amy's comments / recommendations.
The only outstanding items are:

Bullet point #3, Chad Boutet who is G&W's engineering consultant is looking into the FTP-38 sign and if it is needed. We will revised per his recommendation when we receive it.

Bullet point #8, Chad has indicated that he recommends a W10-1 sign with amber flashing lights that are activated with the crossing warning devices. We have revised the plan to include this rather than the W10-3 recommended by Pare. Amy do you concur with this?

Anthony,

As we discussed, Chad will require stormwater management design at the northerly side of the crossing to keep the flow of water down the step driveway off of the crossing.

Give me a call so we can decide how NBC would like us to address this?

Regards,
Rich

Richard S. Lipsitz, PLS
President

Waterman Engineering Company

46 Sutton Avenue
East Providence, Rhode Island 02914
(401) 438-5775 – office
(401) 438-5773 – fax



 Please consider the environment before printing this email

From: Anthony Bucci Jr <abucci@buccilaw.com>
Sent: Friday, August 16, 2019 1:24 PM
To: Rich Lipsitz <richard@watermanengineering.net>
Subject: FW: Docket No. 4944

Hi Richard,

See attached Division recommendations. Please give me a call after you have had a chance to review it. Thx.

ANTHONY J BUCCI JR
Attorney At Law

From: Wold, Leo (DPUC) <Leo.Wold@dpuc.ri.gov>
Sent: Friday, August 16, 2019 1:10 PM

To: Massaro, Luly (PUC) <Luly.Massaro@puc.ri.gov>

Cc: Anthony Bucci Jr <abucci@buccilaw.com>; McCarthy, Ken (DPUC) <Ken.McCarthy@dpuc.ri.gov>; Lynch, Kevin (DPUC) <Kevin.Lynch@dpuc.ri.gov>; Hogan, Margaret (PUC) <Margaret.Hogan@puc.ri.gov>

Subject: Docket No. 4944

Dear Ms. Massaro,

Attached for filing with the Commission, please find the Division's Recommendation in the above matter.

Very truly yours,

Leo J. Wold

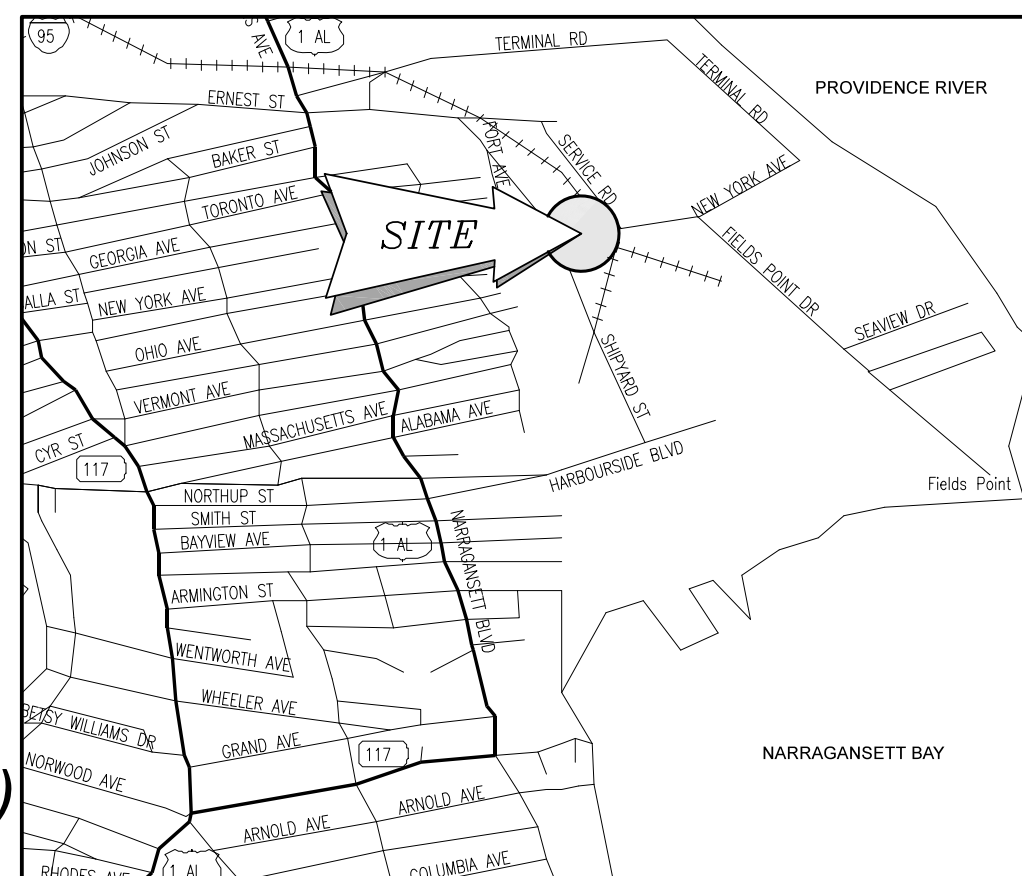
Deputy Chief of Legal Services, DPUC

SHIPYARD ST. & NEW YORK AVE. CROSSING

SHIPYARD STREET & NEW YORK AVENUE
PROVIDENCE, RHODE ISLAND
JULY 2019
REVISED: AUGUST 2019

INDEX SHEET:

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SHEET 4	DETAIL PLAN
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SHEET 6	G & W DETAIL: TYPICAL LOCATION PLAN FOR HIGHWAY CROSSING SIGNALS II
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SHEET 8	G & W DETAIL: TYPICAL X-ING PLAN & SECTION VIEWS PUBLIC CROSSING (RUBBER FLANGEWAY-RAIL SEAL)
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SHEET 12	G & W DETAIL: TYPICAL TRACK ANCHOR & SPIKING PATTERNS
SHEET 13	G & W DETAIL: TYPICAL CROSSING GRADING PLAN



LOCATION MAP

APPLICANT:

NARRAGANSETT BAY COMMISSION
1 SERVICE ROAD
PROVIDENCE, RI 02905

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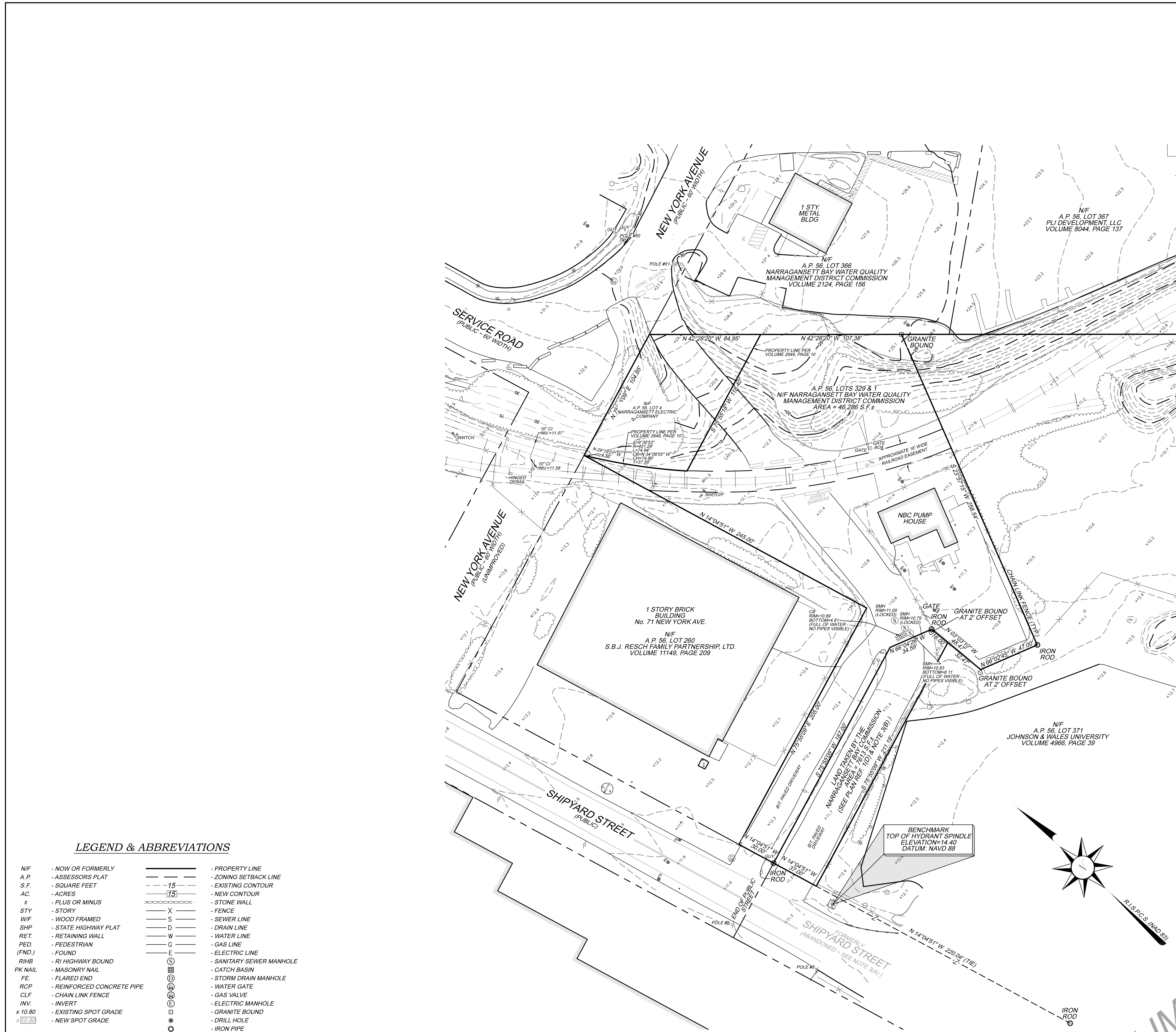
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CONSENT OF THIS OWNER OR ONE OF ITS
DIRECTORS

WATERMAN ENGINEERING CO.
CIVIL ENGINEERS & SURVEYORS
46 SUTTON AVENUE
EAST PROVIDENCE, RI 02914-2096



Waterman
ENGINEERING COMPANY
Engineers & Surveyors - Est. 1894

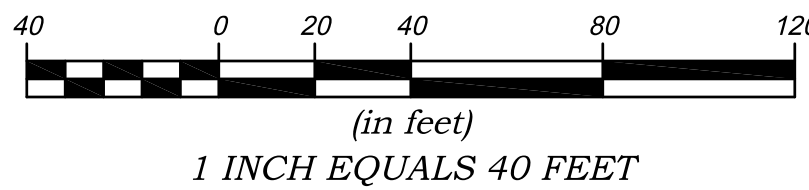
46 Sutton Avenue
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Phone: (401) - 438 - 5775
Fax: (401) - 438 - 5773
www.watermanengineering.net



LEGEND & ABBREVIATIONS

N/F	- NOW OR FORMERLY	---	- PROPERTY LINE
A.P.	- ASSESSORS PLAT	- 15	- ZONING SETBACK LINE
S.F.	- SQUARE FEET	- 15	- EXISTING CONTOUR
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STY	- STORY	- X	- FENCE
W/F	- WOOD FRAMED	- S	- SEWER LINE
SHF	- STATE HIGHWAY PLAT	- D	- DRAIN LINE
RET	- RETAINING WALL	- W	- WATER LINE
RED	- PEDESTRIAN	- G	- GAS LINE
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RCP	- REINFORCED CONCRETE PIPE	- S	- WATER GATE
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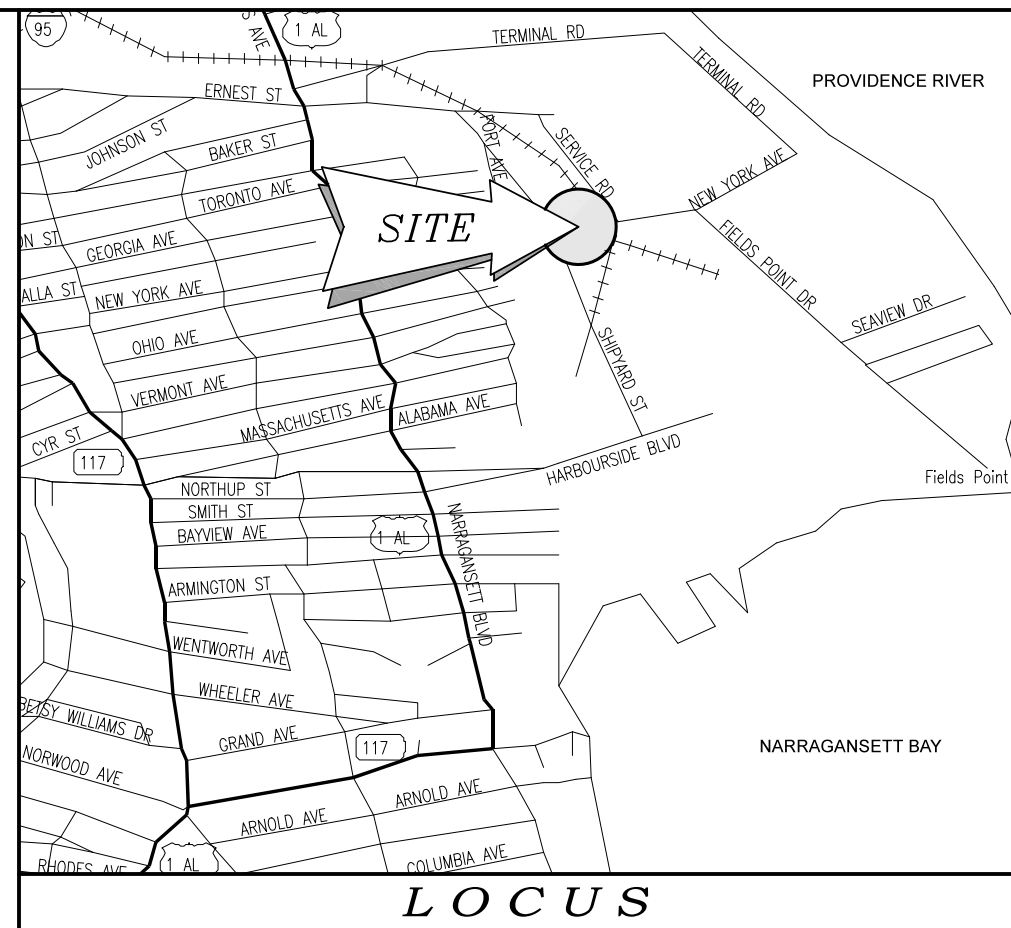
GRAPHIC SCALE



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WATERMAN ENGINEERING CO.
CIVIL ENGINEERS & SURVEYORS
40 SUTTON AVENUE
EAST PROVIDENCE, RI 02914-2096



NOTES / REFERENCES

- REFERENCE IS MADE TO THE FOLLOWING MAPS AND PLANS OF RECORD:
 - PLAN ENTITLED "SURVEY PLAN OF THE PORT OF PROVIDENCE, R.I. SITUATED AT FIELD'S POINT PROVIDENCE, RHODE ISLAND SCALE: 1" = 100' DATE: SEPTEMBER 21, 1994 PREPARED FOR PROFFPORT, INC. & PEABODY & BROWN BY CROSSMAN ENGINEERING, INC."
 - PLAN ENTITLED "ADMINISTRATIVE SUBDIVISION PORT OF PROVIDENCE RHODE ISLAND TERMINAL ROAD, NEW YORK AVENUE, SHIPYARD STREET & HARBORSIDE BOULEVARD PROVIDENCE, RHODE ISLAND PROJECT NO. 98-121 SCALE: 1" = 100' FEB. 17, 2005 BY WATERMAN ENGINEERING CO."
 - PLAN ENTITLED "SURVEY OF LAND FOR NEWHARBOR PARTNERS PROVIDENCE, CRANSTON SCALE: 1" = 100' BY THE GUILLETTE CORPORATION LAST REVISED: JULY 18, 1988"
 - PLAN ENTITLED "A.P. 56, LOT 371, N/F JOHNSON AND WALES UNIVERSITY SHOWING LAND IN PROVIDENCE, RI TAKEN FOR SECURITY AND ACCESS PURPOSES BY THE NARRAGANSETT BAY COMMISSION, PREPARED BY LEDDY LAND SURVEYING, SCALE: 1" = 40', DATE: JANUARY 30, 2015, RICHARD F. LEDDY, P.L.S. No. 1940"
- REFERENCE IS MADE TO THE FOLLOWING CITY OF PROVIDENCE LAND EVIDENCE RECORDS REGARDING RECORDED TITLE TO THE PREMISES SURVEYED:
 - A.P. 56, LOT 329 - NARRAGANSETT BAY WATER QUALITY MANAGEMENT DISTRICT COMMISSION - VOLUME 2649, PAGE 10
- THESE PREMISES MAY BE SUBJECT TO THE FOLLOWING EASEMENTS, RIGHTS OF WAY OR AGREEMENTS OF RECORD:
 - RESOLUTION OF THE CITY COUNCIL No. 251 APPROVED APRIL 24, 2012 REGARDING THE ABANDONMENT OF A PORTION OF SHIPYARD STREET AS DESCRIBED IN VOLUME 10368, PAGE 270.
 - TAKING BY THE NARRAGANSETT BAY COMMISSION AS DESCRIBED IN VOLUME 11144, PAGE 320 AS SHOWN ON PLAN REF. 1(D)
 - 16' WIDE RAILROAD EASEMENT AS REFERENCED IN VOLUME 2649, PAGE 10
- THESE PREMISES ARE SITUATED IN AN 'W-2 ZONE':

DIMENSIONAL REQUIREMENTS

MIN. LOT AREA	= NONE
MIN. LOT WIDTH	= NONE
MIN. S/B FRONT YARD	= NONE
MIN. S/B REAR YARD	= NONE, UNLESS ABUTTING A RESIDENTIAL DISTRICT, THEN 20 FT.
MIN. S/B SIDE YARD	= 6 FT.
MAX. BUILDING HEIGHT	= 75 FT.
MAX. LOT COVERAGE	= N/A

NOTE - ZONING INFORMATION IS FROM CURRENT ZONING AND MAY NOT REFLECT THE CONDITIONS AT THE TIME OF CONSTRUCTION OR ANY VARIANCES GRANTED.
- PORTIONS OF THESE PREMISES ARE SITUATED IN A ZONE 'AE' (EL. 17), ZONE 'X' (AREAS OF 0.2% ANNUAL CHANCE FLOOD...) AND ZONE 'X' (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS DESIGNATED ON THE "NATIONAL FLOOD INSURANCE PROGRAM, FIRM FLOOD INSURANCE RATE MAP PROVIDENCE COUNTY, RHODE ISLAND (ALL JURISDICTIONS) PANEL 317 OF 451 CITY OF PROVIDENCE" MAP NUMBER 44007001Z1 EFFECTIVE DATE: SEPTEMBER 18, 2013, FEDERAL EMERGENCY MANAGEMENT AGENCY."
- ANY UTILITIES SHOWN ON THIS PLAN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING PLANS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UTILITIES SHOWN COMPRISE ALL SUCH OR ABANDONED. THE SURVEYOR DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM ALL AVAILABLE INFORMATION. (PLEASE CONTACT DIG SAFE 72 HOURS PRIOR TO CONSTRUCTION AT PHONE NO. 1-888-DIG-SAFE AND/OR ALL LOCAL UTILITY COMPANIES.)
- THE HORIZONTAL DATUM FOR THIS PROJECT IS THE R.I.S.P.C.S. (NAD 83) AND THE VERTICAL DATUM FOR THIS PROJECT IS NAVD 88. THE PROJECT DATUMS WERE ESTABLISHED FROM REFERENCE STATIONS AND GNSS CORRECTIONS RECEIVED FROM THE LEICA SMARTNET NORTH AMERICA RTK NETWORK VIA CARLSON SRX6 GNSS ANTENNAS / RECEIVERS.
- PLANIMETRICS FROM AERIAL PHOTOGRAMMETRIC MAPPING COMPILED BY EASTERN TOPOGRAPHICS - P.O. BOX 970 - 495 CENTER STREET (RT. 28) - WOLFEBORO, N.H. 03894-0970 WITH AERIAL PHOTOS EXPOSED NOVEMBER 4, 2018 SUPPLEMENTED BY FIELD EDITS IN JULY, 2019. GROUND CONTROL BY WATERMAN ENGINEERING CO. BUILDING LINES REPRESENT ROOF LINES AS SEEN IN THE AERIAL PHOTOGRAPHY.

** SIGNATURES MUST BE IN BLUE INK TO CONSTITUTE AN ORIGINAL PLAN

CERTIFICATION

THIS SURVEY HAS BEEN CONDUCTED AND THE PLAN HAS BEEN PREPARED TO SECTION 9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS ON JANUARY 1, 2016, AS FOLLOWS:

TYPE OF BOUNDARY SURVEY: LIMITED CONTENT BOUNDARY SURVEY
MEASUREMENT / ACCURACY SPECIFICATION: 1 (AS SHOWN)

OTHER TYPE OF SURVEY: DATA ACCUMULATION TOPOGRAPHIC SURVEY
III T-1

THE PURPOSE FOR CONDUCTING THIS SURVEY AND FOR THE PREPARATION OF THE PLAN IS AS FOLLOWS:
BOUNDARY & TOPOGRAPHIC SURVEY FOR THE FUTURE DEVELOPMENT OF THE SUBJECT PARCEL.

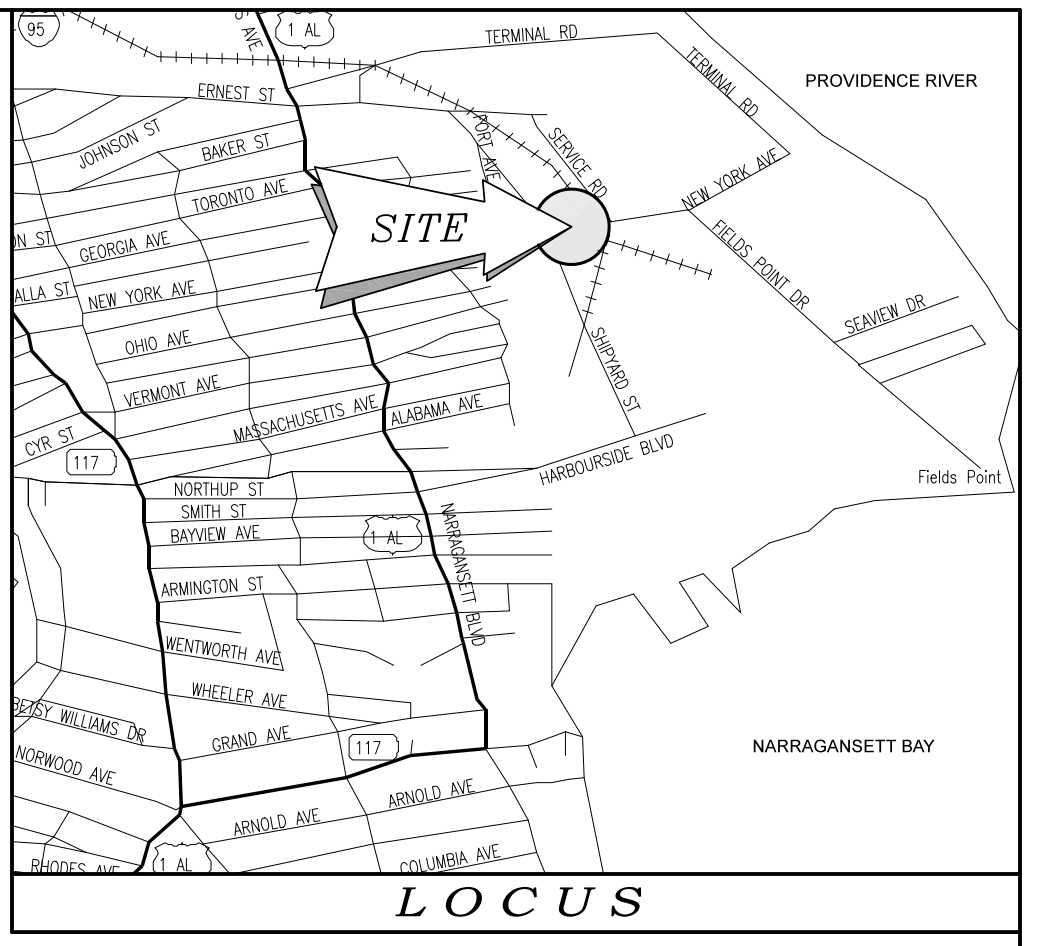
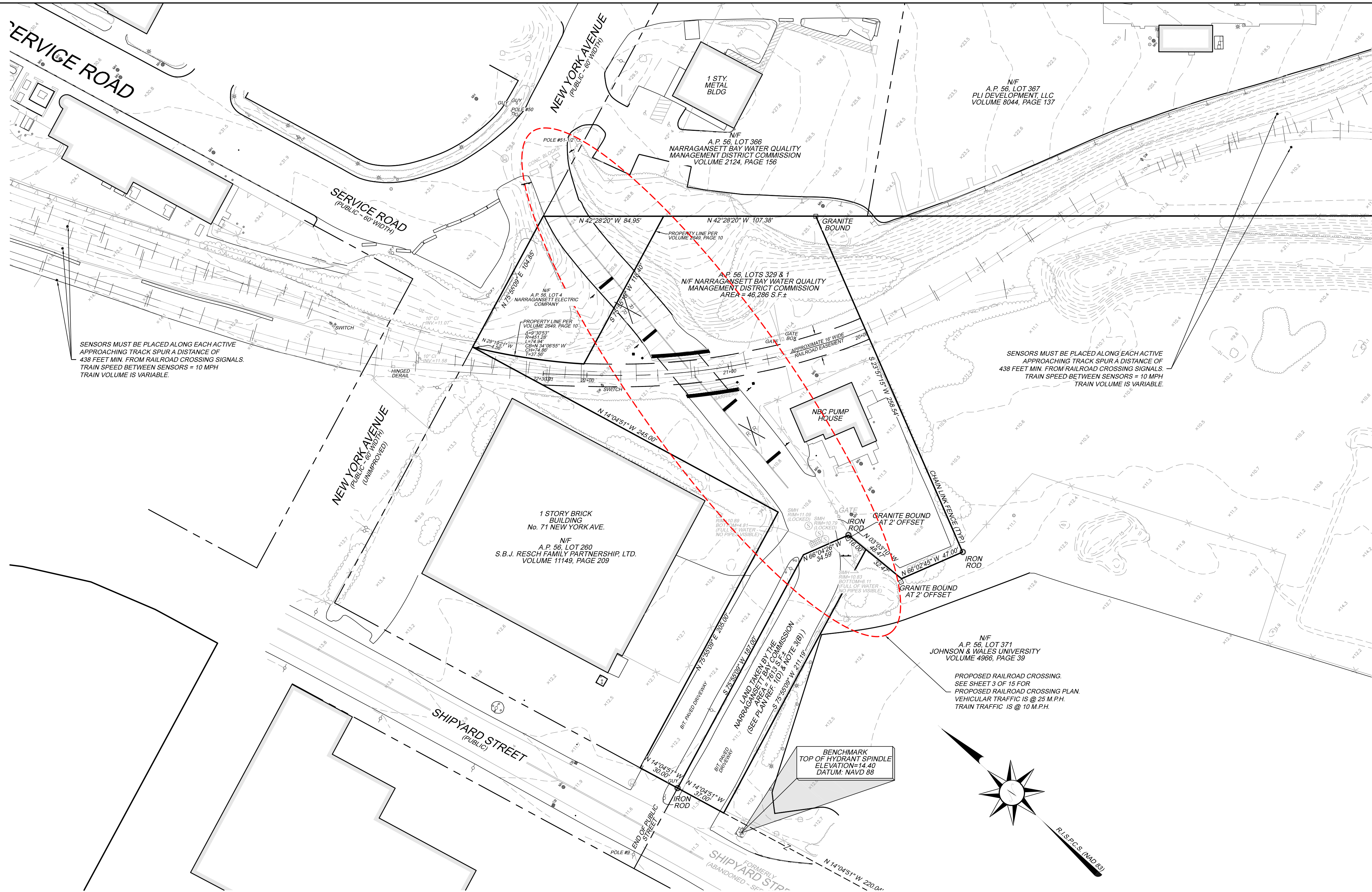


BY: RICHARD S. LIPSITZ, P.L.S. REG. NO. 1837
WATERMAN ENGINEERING COMPANY (COA No. LS 0004483) DATE

1	08/19/19	REVISED PER PARE CORP. COMMENTS DATED 8/8/19	RSL
NO.	DATE	REVISION	CHECKED BY
EXISTING CONDITIONS PLAN A.P. 56, LOT 329 SHIPYARD STREET & NEW YORK AVENUE PROVIDENCE, RHODE ISLAND			
WATERSON TERMINAL SERVICES, LLC PORT OF PROVIDENCE - 35 TERMINAL ROAD PROVIDENCE, RHODE ISLAND 02905			
PROJECT NO. 98-121 SCALE: 1" = 40' DATE: 6/18/2019 DRAWN BY: BJT/MS CHECKED BY: RSL FILENAME: 98-121_RR_Crossing_rev1 1 of 15 SHTS DRAWING # SU1			



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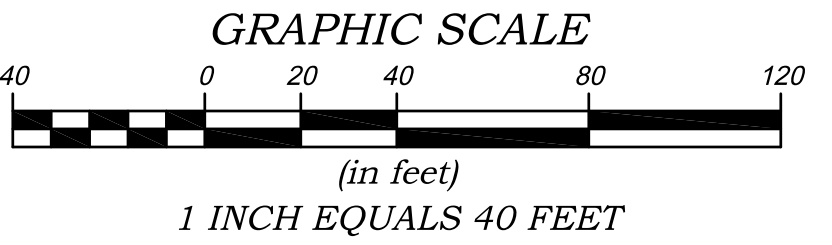


NOTES / REFERENCES

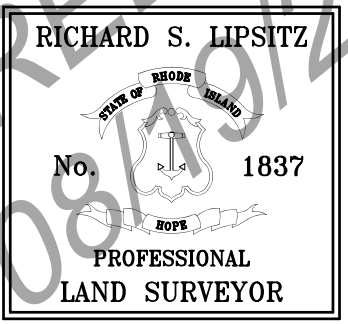
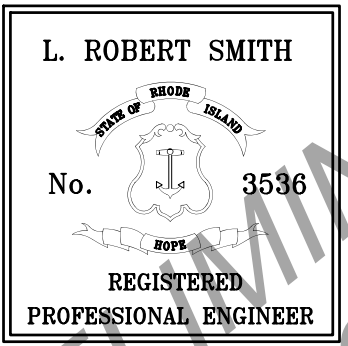
- SEE SHEET 1 FOR EXISTING CONDITIONS NOTES & REFERENCES.
- SEE SHEET 4: DETAIL PLAN FOR CONTRACT SPECIFICATION FOR ROAD CROSSING CONSTRUCTION & INSTALLATION.

LEGEND & ABBREVIATIONS

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STY	- STORY	X	- FENCE
W/F	- WOOD FRAMED	S	- SEWER LINE
SHP	- STATE HIGHWAY PLAT	D	- DRAIN LINE
RET	- RETAINING WALL	W	- WATER LINE
PEF	- PEDESTRIAN	G	- GAS LINE
(FND)	- FOUND	E	- ELECTRIC LINE
RIHB	- RI HIGHWAY BOUND	⊙	- SANITARY SEWER MANHOLE
PK NAIL	- MASONRY NAIL	⊙	- CATCH BASIN
FE	- FLARED END	⊙	- STORM DRAIN MANHOLE
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CLF	- CHAIN LINK FENCE	⊙	- GAS VALVE
INV.	- INVERT	⊙	- ELECTRIC MANHOLE
x 10.80	- EXISTING SPOT GRADE	⊙	- GRANITE BOUND
17.25	- NEW SPOT GRADE	⊙	- DRILL HOLE
		⊙	- IRON PIPE



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** SIGNATURES MUST BE IN BLUE INK TO CONSTITUTE AN ORIGINAL PLAN

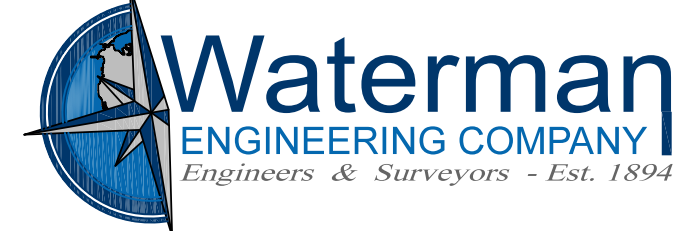
CERTIFICATION

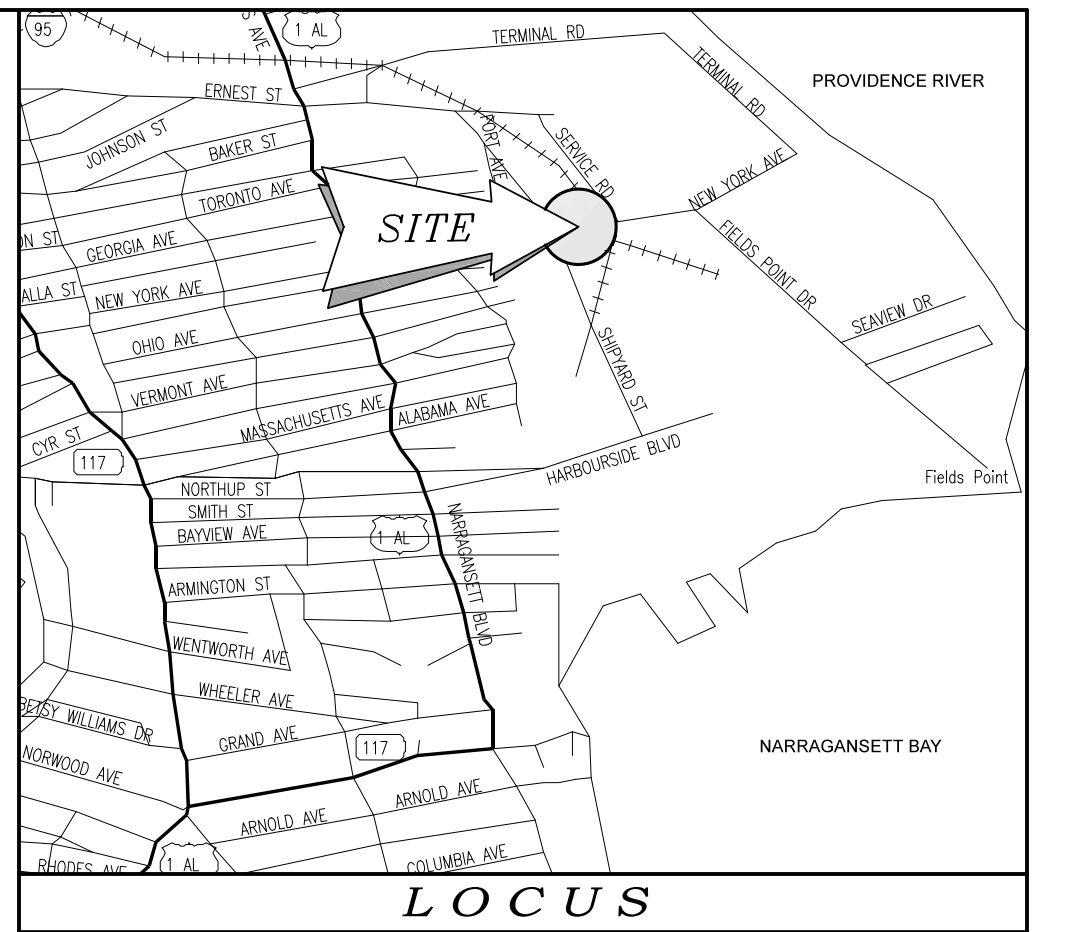
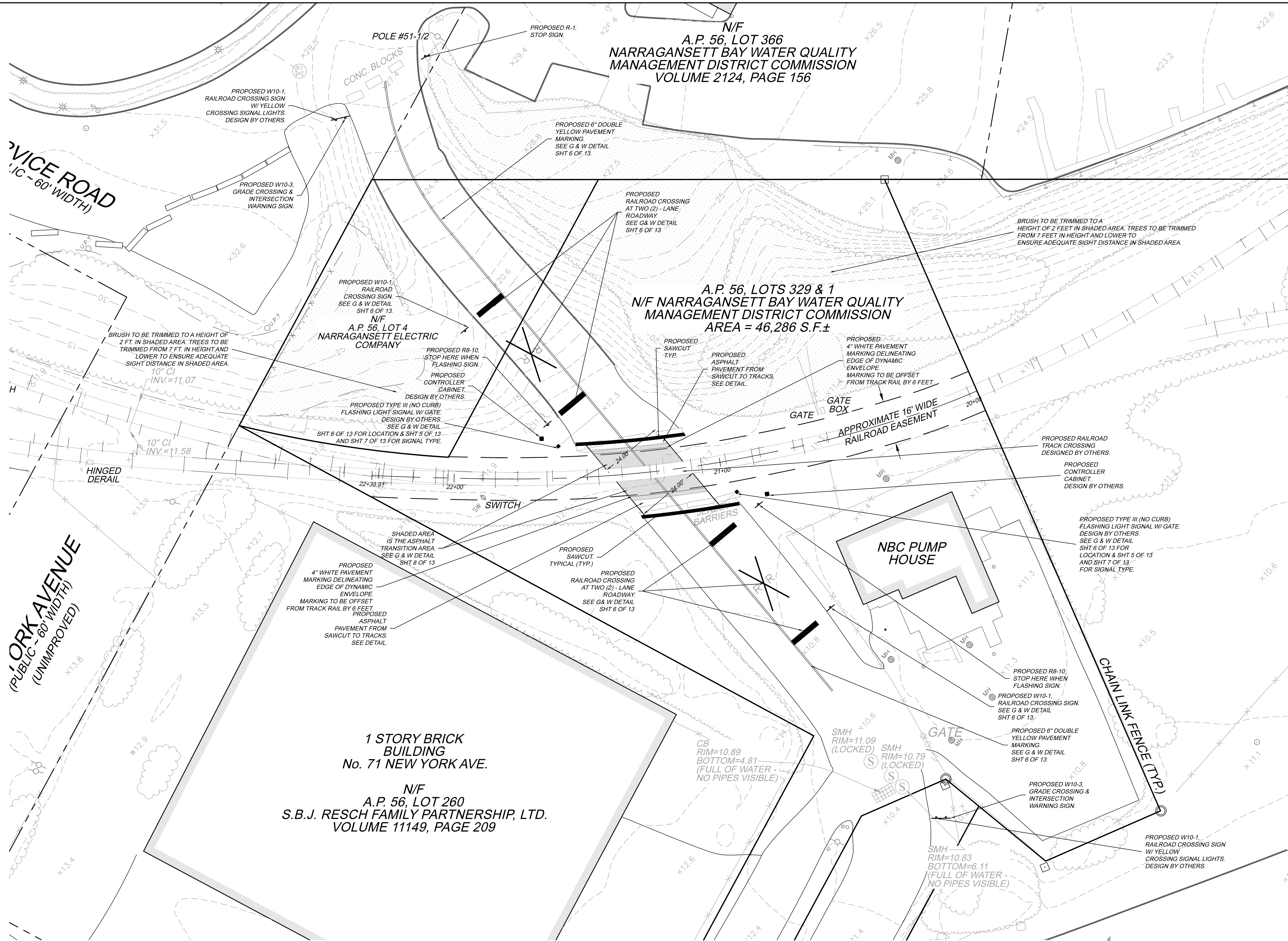
THIS SURVEY HAS BEEN CONDUCTED AND THE PLAN HAS BEEN PREPARED TO SECTION 9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS ON JANUARY 1, 2016, AS FOLLOWS:

TYPE OF BOUNDARY SURVEY: COMPREHENSIVE BOUNDARY SURVEY
MEASUREMENT / ACCURACY SPECIFICATION: I
OTHER TYPE OF SURVEY: DATA ACCUMULATION TOPOGRAPHIC SURVEY III T-1

THE PURPOSE FOR CONDUCTING THIS SURVEY AND FOR THE PREPARATION OF THE PLAN IS AS FOLLOWS:
BOUNDARY & TOPOGRAPHIC SURVEY FOR THE FUTURE DEVELOPMENT OF THE SUBJECT PARCEL.

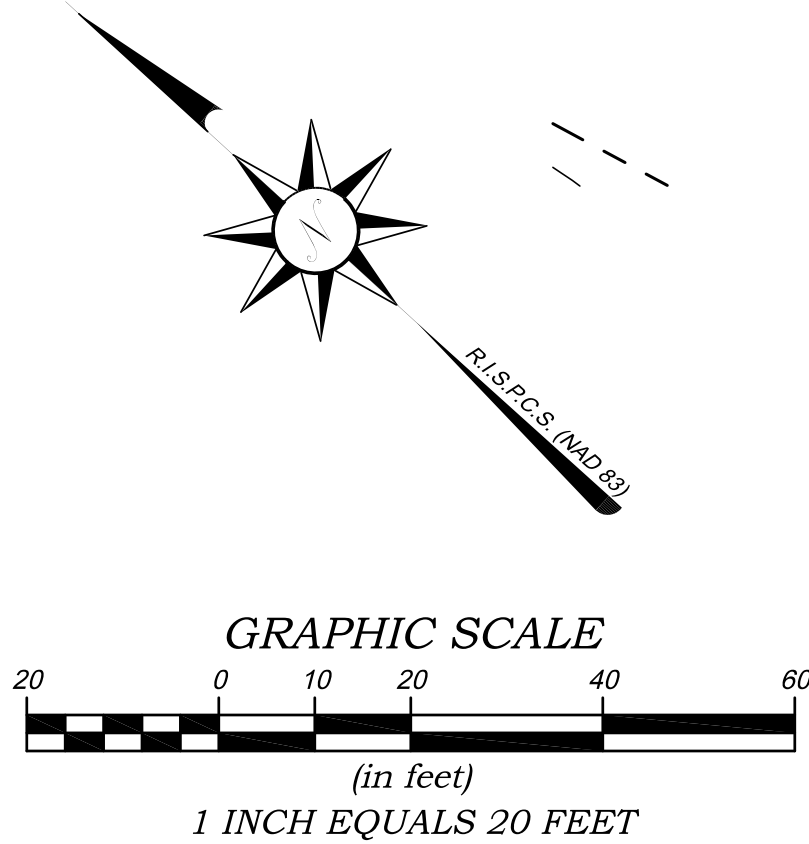
BY: RICHARD S. LIPSITZ, P.L.S. REG. NO. 1837
WATERMAN ENGINEERING COMPANY (COA No. LS.0004483) DATE

1	08/19/19	REVISED PER PARE CORP. COMMENTS DATED 8/6/19	RSL
NO.	DATE	REVISION	CHECKED BY
PROJECT NO. 98-121			
SCALE: 1" = 40'			
DATE: 6/18/2019			
DRAWN BY: BJT/MS			
CHECKED BY: RSL/LRS			
FILENAME: 98-121_RR Crossing.rvt			
2 of 15 SHTS			
DRAWING # C-1			
PROPOSED CONDITION PLAN PORT OF PROVIDENCE SHIPYARD STREET & NEW YORK AVENUE PROVIDENCE, RHODE ISLAND			
WATERSON TERMINAL SERVICES, LLC PORT OF PROVIDENCE - 35 TERMINAL ROAD PROVIDENCE, RHODE ISLAND 02905			
 Waterman ENGINEERING COMPANY Engineers & Surveyors - Est. 1894			
46 Sutton Avenue East Providence, RI Phone: (401) - 438 - 5775 Fax: (401) - 438 - 5773 www.watermanengineering.net			



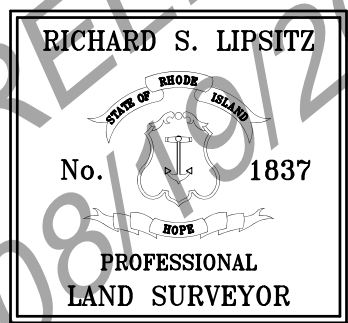
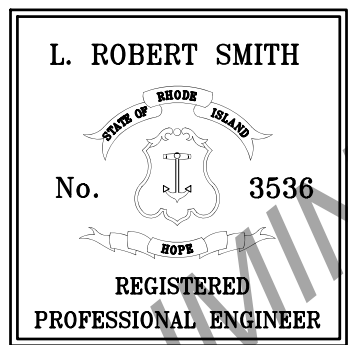
NOTES / REFERENCES

- SEE SHEET 1 FOR EXISTING CONDITIONS NOTES & REFERENCES.
- SEE SHEET 4, DETAIL PLAN FOR CONTRACT SPECIFICATION FOR ROAD CROSSING CONSTRUCTION & INSTALLATION.



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STY	- STORY	---	- FENCE
WF	- WOOD FRAMED	---	- SEWER LINE
SHP	- STATE HIGHWAY PLAT	---	- DRAIN LINE
RET.	- RETAINING WALL	---	- WATER LINE
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RH/B	- RI HIGHWAY BOUND	---	- SANITARY SEWER MANHOLE
PK NAIL	- MASONRY NAIL	---	- CATCH BASIN
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RCP	- REINFORCED CONCRETE PIPE	---	- WATER GATE
CLF	- CHAIN LINK FENCE	---	- GAS VALVE
INV.	- INVERT	---	- ELECTRIC MANHOLE
x 10.80	- EXISTING SPOT GRADE	---	- GRANITE BOUND
x 10.20	- NEW SPOT GRADE	---	- DRILL HOLE
		---	- IRON PIPE



** SIGNATURES MUST BE IN BLUE INK TO CONSTITUTE AN ORIGINAL PLAN

CERTIFICATION

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MEASUREMENT / ACCURACY SPECIFICATION: I

OTHER TYPE OF SURVEY: DATA ACCUMULATION TOPOGRAPHIC SURVEY
III T-1

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BY: RICHARD S. LIPSITZ, P.L.S. REG. NO. 1837
WATERMAN ENGINEERING COMPANY (COA No. LS.0004483) DATE

1	08/19/19	REVISED PER PARE CORP. COMMENTS DATED 8/6/19	RSL
NO.	DATE	REVISION	CHECKED BY
PROPOSED RAILROAD CROSSING PLAN PORT OF PROVIDENCE SHIPYARD STREET & NEW YORK AVENUE PROVIDENCE, RHODE ISLAND			
WATERSON TERMINAL SERVICES, LLC PORT OF PROVIDENCE - 35 TERMINAL ROAD PROVIDENCE, RHODE ISLAND 02905			
PROJECT NO. 98-121 SCALE: 1" = 20' DATE: 6/18/2019 DRAWN BY: BJT/MS CHECKED BY: RSL/LRS FILENAME: 98-121_RR Crossing.rvt 3 of 15 SHOTS DRAWING # C-2			
 46 Sutton Avenue East Providence, RI Phone: (401) - 438 - 5775 Fax: (401) - 438 - 5773 www.watermanengineering.net			

C CONTRACT SPECIFICATIONS FOR ROAD CROSSING CONSTRUCTION AND INSTALLATION

1. WORK INCLUDED

FURNISH ALL SUPERVISION, LABOR, MATERIALS NOT FURNISHED BY RAILROAD (SEE 3A), EQUIPMENT, TRANSPORTATION AND INCIDENTALS NECESSARY TO CONSTRUCT AND INSTALL ROAD CROSSINGS AS PER THE SPECIFICATIONS OUTLINED IN ITEM 6 BELOW.

2. MEASUREMENT AND PAYMENT

A. MEASUREMENT AND PAYMENT FOR CONSTRUCTING AND INSTALLING ROAD CROSSINGS WILL BE MADE AT THE BID UNIT PRICE PER "TRACK FEET" AS SPECIFIED IN BID FORM "A". THE BID PRICE SHALL INCLUDE, BUT WILL NOT BE LIMITED TO, TRANSPORTATION, LABOR, TOOLS EQUIPMENT, SUPERVISION, AND ANY OTHER INCIDENTALS NECESSARY TO ACCOMPLISH TO WORK.

3. MATERIALS

A. UNLESS OTHERWISE AGREED UPON IN THE QUOTATION AND CONTRACT, MATERIALS TO BE INSTALLED UNDER THIS CONTRACT SHALL BE PROVIDED BY THE RAILROAD. RAIL SHOULD BE NEW 115# OR GREATER, BUT NO MORE THAN ONE RAIL SIZE ABOVE THE EXISTING RAIL IN THE APPROACH TO THE GRADE CROSSING. IF THE RAIL IN THE APPROACH TO THE GRADE CROSSING IS SMALLER THAN 100#, BUFFER RAILS WILL BE REQUIRED TO TRANSITION TO THE NEW RAIL.

B. CONTRACTOR TO SUPPLY RAILROAD BALLAST

C. CONTRACTOR TO PROVIDE HOT MIX ASPHALT (HMA) AND UNLESS OTHERWISE AGREED UPON IN THE QUOTATION AND CONTRACT, OTHER MATERIALS TO BE INSTALLED UNDER THIS CONTRACT SHALL BE PROVIDED BY THE RAILROAD. HMA SHALL CONFORM TO THE PROJECT STATE DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS. HMA MIX DESIGN SHALL BE SUBMITTED TO THE ENGINEER (REGIONAL V.P. - ENGINEERING OR DESIGNEE) FOR REVIEW AND APPROVAL PRIOR TO HMA PLACEMENT.

D. MATERIALS DAMAGED OR BROKEN DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE REPLACED BY THE RAILROAD, AT THE CONTRACTOR'S SOLE EXPENSE. THE CONTRACTOR WILL HAVE DEDUCTED FROM HIS INVOICE ANY COSTS FOR MATERIAL REPLACED BY THE RAILROAD DUE TO THE CONTRACTOR'S NEGLIGENCE, MISUSE OR LOSS OF MATERIALS PROVIDED EARLIER BY THE RAILROAD. THE CONTRACTOR WILL BE BILLED FOR THE ACTUAL COSTS PLUS ADDITIVES INCURRED BY THE RAILROAD FOR THE REPLACEMENT MATERIAL.

E. IF HMA IS NOT AVAILABLE DUE TO CLIMATE OR SEASON, THE USE OF COLD MIX ASPHALT MUST BE REQUESTED AT LEAST TWO WEEKS ADVANCE AND APPROVED BY THE ENGINEER IN WRITING.

4. EQUIPMENT

A. ALL EQUIPMENT NECESSARY FOR THE REHABILITATION OF THE TRACK, OR ANY INCIDENTAL WORK RELATED THERETO, UNDER THIS SECTION WILL BE FURNISHED BY THE CONTRACTOR, AT NO COST TO THE RAILROAD.

B. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE SECURITY OF ANY EQUIPMENT STORED ON RAILROAD PROPERTY DURING THE PERFORMANCE OF THIS CONTRACT.

C. ALL EQUIPMENT MUST MEET THE REQUIREMENTS OF CFR TITLE 49, PART 214 D - ON-TRACK ROADWAY MAINTENANCE MACHINES AND HI-RAIL VEHICLES.

5. EXECUTION

A. CONTRACTOR SHALL BE REQUIRED TO PERFORM THE WORK AT ALL TIMES UNDER THE SUPERVISION OF A QUALIFIED SUPERINTENDENT, OR GENERAL FOREMEN EXPERIENCED IN RAILROAD TRACK CONSTRUCTION AND REHABILITATION. ALL TRACK REHABILITATION SHALL BE PERFORMED BY FOREMEN AND LABORERS EXPERIENCED IN RAILROAD TRACK REHABILITATION. SUPERVISORS AND LABORERS NOT QUALIFIED TO REHABILITATE THE RAILROAD TRACK WILL BE REMOVED AND REPLACED BY QUALIFIED PERSONNEL WHEN REQUESTED BY THE ENGINEER, AT HIS SOLE DISCRETION.

B. THE CONTRACTOR SHALL EXERCISE CARE IN HIS PROGRESSION OF WORK UNDER THIS CONTRACT TO AVOID AND PREVENT DAMAGE TO ADJACENT STRUCTURES AND FACILITIES, INCLUDING, BUT NOT LIMITED TO, EXISTING PAVEMENTS, PAVEMENT BASES, DRAINAGE STRUCTURES, RAILROAD SIGNAL APPLIANCES, CABLES AND WIRES, LIGHT POLES, FIRE HYDRANTS, UTILITIES AND BUILDINGS. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE "CALL BEFORE YOU DIG" CENTER FOR THE PROJECT AREA AND HAVING UTILITIES MARKED IN THE PROJECT AREA.

C. THE CONTRACTOR SHALL PERFORM HIS WORK UNDER THIS SECTION IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN A MANNER THAT IS CONSISTENT WITH TRACK REHABILITATION AS IS STANDARD IN THE RAILROAD INDUSTRY AMONG CLASS 1 RAILROADS IN THE CONTINENTAL UNITED STATES. IF THE CONTRACTOR SHOULD FIND ANY OMISSIONS OR ITEMS FOR WHICH HE DESIRES CLARIFICATION, IT SHALL BE HIS SOLE RESPONSIBILITY TO ADDRESS THESE ITEMS TO THE ENGINEER.

6. CONSTRUCTING AND INSTALLING ROAD CROSSINGS

A. REFERENCE STAKE THE EXISTING ALIGNMENT AND PROFILE. RE-STAKE NEW TOP OF RAIL PROFILE AS NECESSARY TO MATCH ADJACENT EXISTING TRACK AND/OR STREET ELEVATION.

B. SAW CUT ASPHALT A MINIMUM OF 7" EACH SIDE OF THE TRACK CENTERLINE TO FACILITATE THE INSTALLATION OF 10" TIES AND PAVING THE APPROACHES.

C. REMOVE EXISTING TRACK TO A MINIMUM OF 10' PAST EACH END OF THE CROSSING. ASPHALT AND TIES TO BE DISPOSED OF OFFSITE BY THE CONTRACTOR. TIES, CROSSING MATERIAL (INCLUDING ASPHALT), AND OTM TO BE PROPERLY DISPOSED OF OFFSITE BY CONTRACTOR. THE ENGINEER MAY SPECIFY MATERIAL (TIES AND OTM) TO BE KEPT FOR RE-USE. CONTRACTOR WILL DELIVER THIS MATERIAL TO A LOCATION SPECIFIED BY THE ENGINEER. ALL SCRAP MATERIAL MUST BE PROPERLY DISPOSED OF. SCRAP TIES AND OTHER CREOSOTED MATERIAL MUST BE DISPOSED OF IN COMPLIANCE WITH THE G&W CROSSTIE DISPOSAL POLICY. THE AREA AROUND THE GRADE CROSSING WILL BE GRADED AND DRESSED TO PROVIDE A SMOOTH AND PROPERLY DRAINING SURFACE.

D. EXCAVATE TO A DEPTH THAT WILL ALLOW FOR A MINIMUM OF 8" OF RAILROAD GRADE CRUSHED ROCK BALLAST. DISTURBED SUBGRADE MUST BE COMPACTED WITH AT LEAST A PLATE COMPACTOR OR VIBRATORY TAMPER TYPE COMPACTOR TO ACHIEVE AT LEAST 95 PERCENT OF ITS MAXIMUM UNIT WEIGHT. EXCAVATED MATERIALS MAY BE SPREAD ON THE RAILROAD RIGHT OF WAY AS PERMITTED BY THE ENGINEER, WHEN THEY WILL NOT ADVERSELY AFFECT DRAINAGE OR RAILROAD OPERATIONS. DRAINAGE PIPE IS TO BE INSTALLED AS SPECIFIED BY THE ENGINEER AND AS REQUIRED IN THE BID DOCUMENTS. DRAINAGE PIPE SHALL BE INSTALLED AS SHOWN IN G&W STANDARD PLAN ES6006.1. CORNERS OF THE ROAD CROSSING SHALL BE GRADED TO DRAIN AWAY FROM THE TRACK (SEE STANDARD PLAN ES8052.1)

E. TIES SHOULD BE SQUARE TO THE RAIL AND AT THE SPACING REQUIRED FOR THE TYPE OF CROSSING PANELS BEING INSTALLED (MANUFACTURER SPECIFICATIONS). TIES SHALL BE SPIKED WITH A MINIMUM OF 2 RAIL SPIKES ON THE GAGE SIDE AND 1 RAIL WITH 1 ANCHOR SPIKE ON THE FIELD SIDE OF THE PLATE. IF THE SPIKING PATTERN FOR THE TRACK ADJACENT TO THE ROAD CROSSING CALLS FOR ADDITIONAL SPIKES, THAT PATTERN SHALL BE UTILIZED THROUGH THE ROAD CROSSING (SEE STANDARD PLAN ES8050.1). ALL SPIKE HOLES WILL BE PRE-DRILLED WITH A 3/8" BY TO A DEPTH NOT TO EXCEED 6". RAIL WILL BE BOX ANCHORED THOUGH THE ENTIRE LENGTH OF THE CROSSING SURFACE (SEE STANDARD PLAN ES8050.1). RAIL JOINTS ARE NOT ALLOWED WITHIN THE LIMITS OF THE CROSSING SURFACE OR CLOSER THAN 25 FEET TO THE EDGE OF CROSSING.

F. RAISE AND TAMP THE TRACK WITH MECHANICAL MEANS TO PREVENT FUTURE SETTLEMENT. TWO TAMPING PASSES SHOULD BE MADE WITH A MECHANICAL TAMPER. CROSSING APPROACHES SHOULD BE TAMPED AND RAISED AS NECESSARY TO ENSURE A UNIFORM RUNOFF (AT LEAST 200' EACH WAY). TRACK SURFACING AND DRESSING MUST BE PERFORMED IN COMPLIANCE WITH SPECIFICATION 500-2.

G. ALL ROAD CROSSING REHABILITATION IN CWR SHALL BE PERFORMED IN COMPLIANCE WITH THE G&W PROCEDURES FOR THE INSTALLATION, ADJUSTMENT, MAINTENANCE AND INSPECTION OF CWR (LATEST REVISION). THE CONTRACTOR WILL BE RESPONSIBLE FOR COMPLETING AND SIGNING DAILY A "TRACK DISTURBANCE REPORT." THESE REPORTS WILL BE FILED WITH THE RAILROAD ON A DAILY BASIS.

H. INSTALL AND FASTEN FULL DEPTH PRE-CAST CONCRETE CROSSING PANELS IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS FOR THE FULL WIDTH OF THE ROAD CROSSING (SEE STANDARD PLANS ES6007.1).

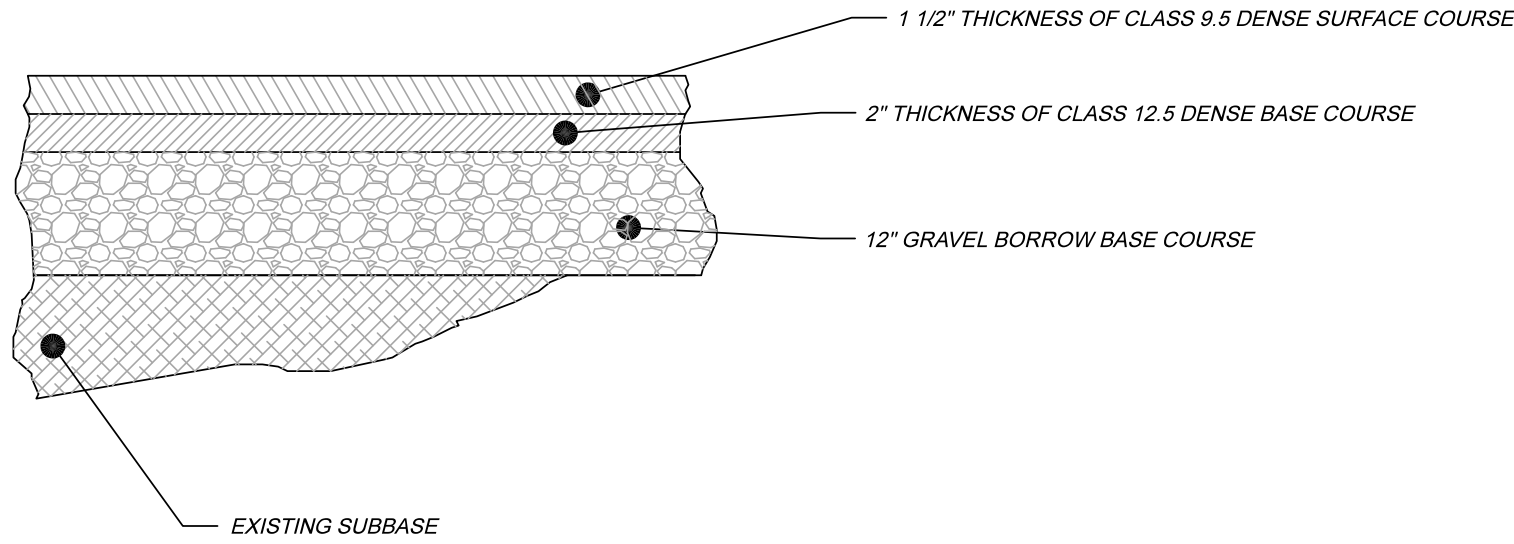
I. RAIL SEAL TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS (SEE STANDARD PLAN ES6005.3).

J. INSTALL OTHER CROSSING SURFACES ACCORDING TO (PREMIER MODULAR CROSSINGS, COMPOSITE CROSSINGS, FULL WIDTH TIMER, ETC) MANUFACTURER'S INSTRUCTIONS.

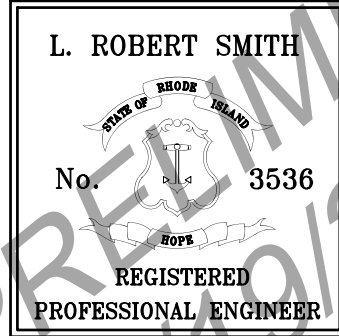
K. ASPHALTING FULL DEPTH AND COMPACTING IN ACCORDANCE WITH SPECIFICATIONS AND G&W STANDARD DRAWINGS FOR THE FULL WIDTH OF THE ROAD CROSSING.

L. CONTRACTOR TO COORDINATE ROAD CLOSURES WITH RAILROAD AND THE APPROPRIATE ROADWAY AUTHORITY. CONTRACTOR TO PROVIDE ALL MAINTENANCE OF TRAFFIC (MOT, MOT PLAN AND EXECUTION MUST COMPLY WITH ALL APPLICABLE STATE DOT SPECIFICATION AND REQUIREMENTS AND WHERE REQUIRED MUST HAVE THE APPROVAL OF THE APPROPRIATE AGENCY. CONTRACTOR IS RESPONSIBLE FOR ANY PERMITTING REQUIRED IN RELATION TO THE MOT.

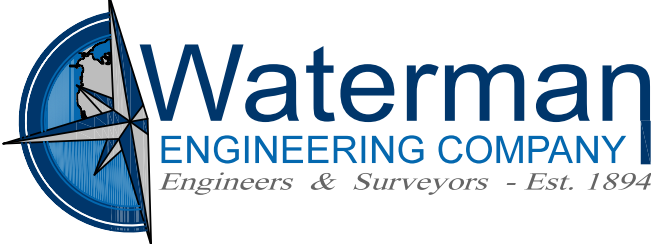
7. APPLICABLE STANDARD PLANS: ES6005.3, ES6006.1, ES6007.1, ES8050.1, ES8052.1.



TYPICAL PAVEMENT SECTION
(N.T.S.)



* SIGNATURES MUST BE IN BLUE INK TO CONSTITUTE AN ORIGINAL PLAN

1	08/19/19	REVISED PER PARE CORP. COMMENTS DATED 8/8/19	RSJ
NO.	DATE	REVISION	CHECKED BY
DETAIL PLAN PORT OF PROVIDENCE SHIPYARD STREET & NEW YORK AVENUE PROVIDENCE, RHODE ISLAND			PROJECT NO. 98-121 SCALE AS NOTED DATE 6/18/2019 DRAWN BY MS CHECKED BY LRS
WATERSON TERMINAL SERVICES, LLC PORT OF PROVIDENCE - 35 TERMINAL ROAD PROVIDENCE, RHODE ISLAND 02905			FILENAME 98-121_RR Crossing.rev1 4 of 15 SHOTS DRAWING # C-3
 <div>46 Sutton Avenue East Providence, RI Phone: (401) - 438 - 5775 Fax: (401) - 438 - 5773 www.watermanengineering.net</div>			

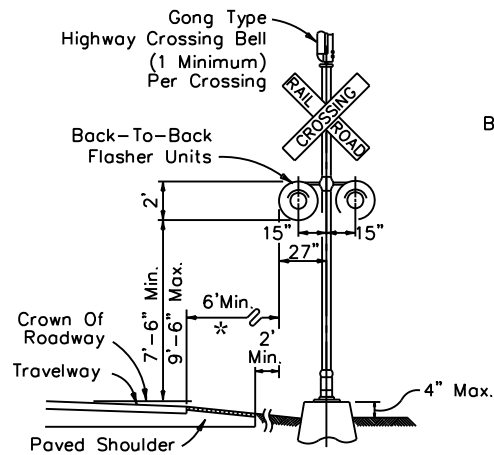
COPYRIGHT



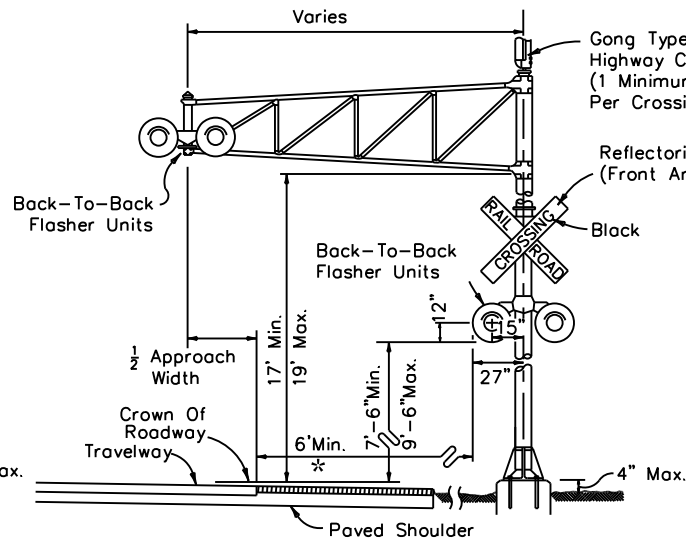
THESE DRAWINGS ARE THE PROPERTY OF THE ENGINEER/SURVEYOR AND HAVE BEEN PREPARED FOR THE OWNER, FOR THIS PROJECT AT THIS SITE AND ARE NOT TO BE USED FOR ANY OTHER PURPOSE, LOCATION OR OWNER WITHOUT WRITTEN CONSENT OF THIS OWNER OR ONE OF ITS DIRECTORS

WATERMAN ENGINEERING CO.
CIVIL ENGINEERS & SURVEYORS
46 SUTTON AVENUE
EAST PROVIDENCE, RI 02914-2006

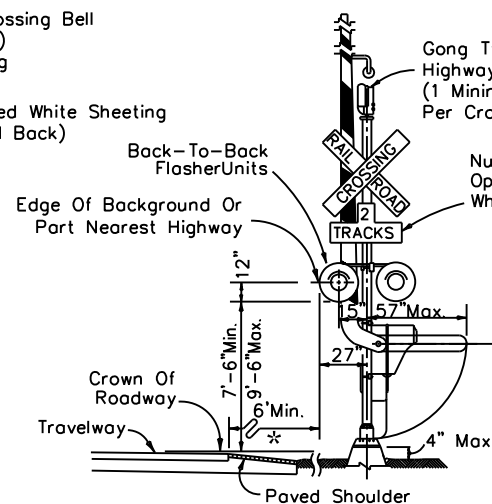
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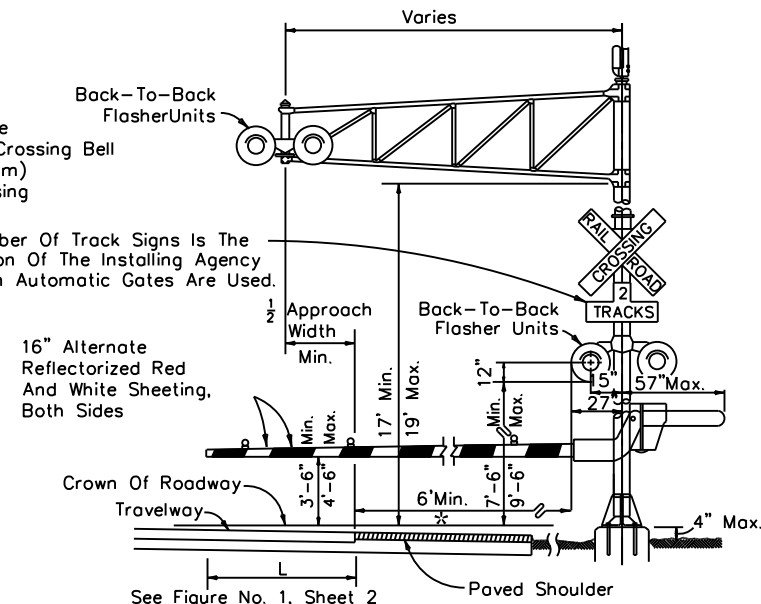
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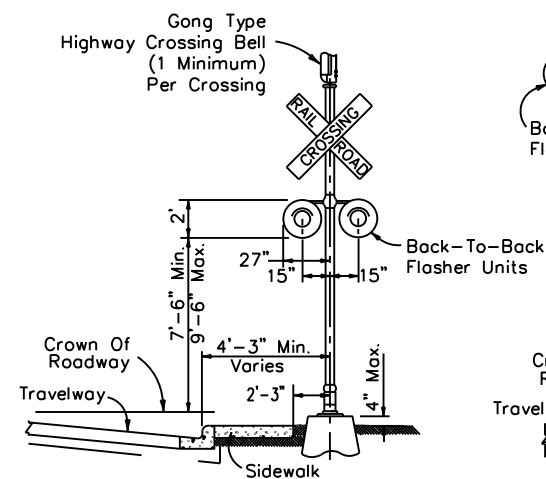


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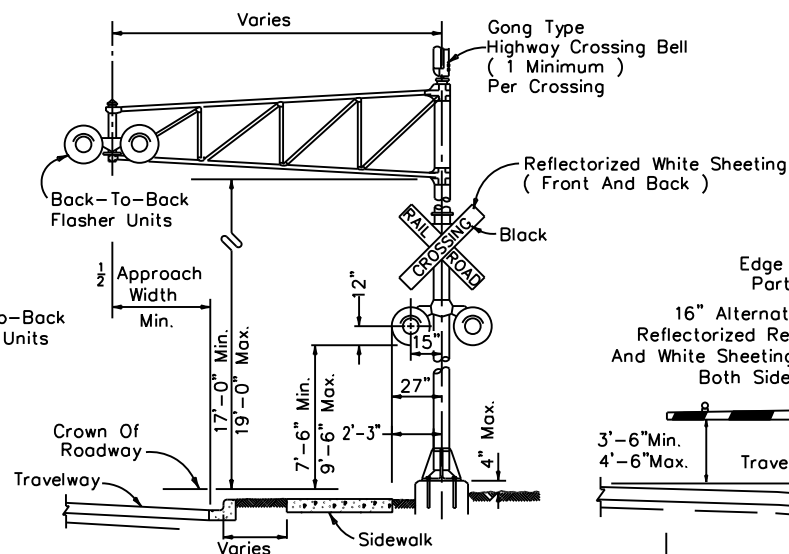


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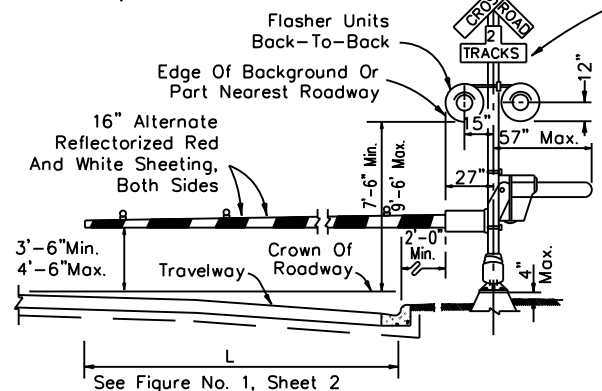
- NOTES:
1. NO GUARDRAIL IS PROPOSED FOR SIGNALS; HOWEVER, SOME FORM OF IMPACT ATTENUATION DEVICE MAY BE SPECIFIED FOR CERTAIN LOCATIONS.
 2. ADVANCE FLASHER TO BE INSTALLED WHEN AND IF CALLED FOR IN PLANS OR SPECIFICATIONS.
 3. TOP OF FOUNDATION SHALL BE NO HIGHER THAN 4" ABOVE FINISHED SHOULDER GRADE.
 4. TYPE OF TRAFFIC CONTROL DEVICE
 - I. FLASHING SIGNALS
 - II. FLASHING SIGNALS WITH CANTILEVER
 - III. FLASHING SIGNALS WITH GATE
 - IV. FLASHING SIGNALS WITH CANTILEVER AND GATE
 - V. GATE
 5. CLASS OF TRAFFIC CONTROL DEVICES
 - I. FLASHING SIGNALS - ONE TRACK
 - II. FLASHING SIGNALS - MULTIPLE TRACKS
 - III. FLASHING SIGNALS AND GATES - ONE TRACK
 - IV. FLASHING SIGNALS AND GATES - MULTIPLE TRACKS
 6. TWO SEPARATE FOUNDATIONS MAY BE REQUIRED (ONE FOR SIGNALS, ONE FOR GATE) DEPENDING ON TYPE OF EQUIPMENT NEEDED.
- * WHEN 6' IS DEEMED IMPRACTICAL, THE CONTROL DEVICE CAN BE LOCATED AS CLOSE AS 2' FROM THE EDGE OF A PAVED OR SURFACED SHOULDER BUT NOT LESS THAN 6' FROM THE EDGE OF TRAVELED WAY (NEAR TRAFFIC LANE).



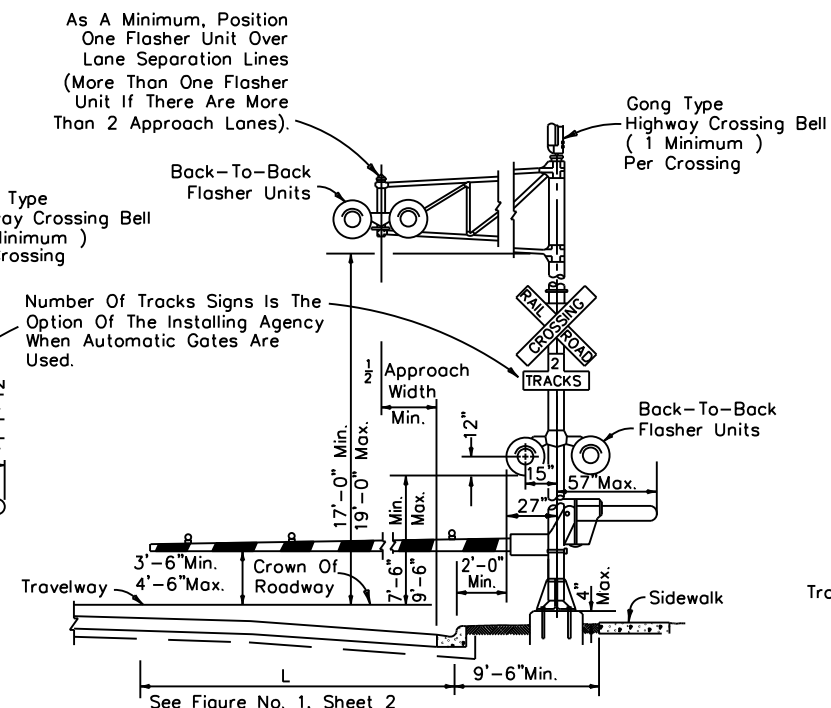
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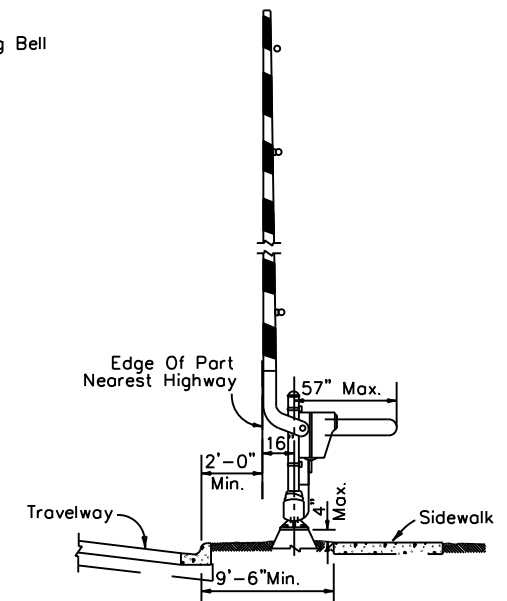
**TYPE II
(WITH CURB)**



**TYPE III
(WITH CURB)**



**TYPE IV
(WITH CURB)**



**TYPE V
(WITH CURB)**



GENESEE & WYOMING
SIGNAL & COMMUNICATION
STANDARDS REFERENCE MANUAL

Issue Date: 03-01-2009 Revised Date: 07-15-2013
Authorized: *Clint Smith*
Chief Engineer Signals and Communications

The material and equipment shown herein must meet or exceed all quality requirements. Any deviation from these standards must be submitted in writing and approved by the Railroad Director of Engineering Services prior to use.

CROSSING WARNING DEVICES

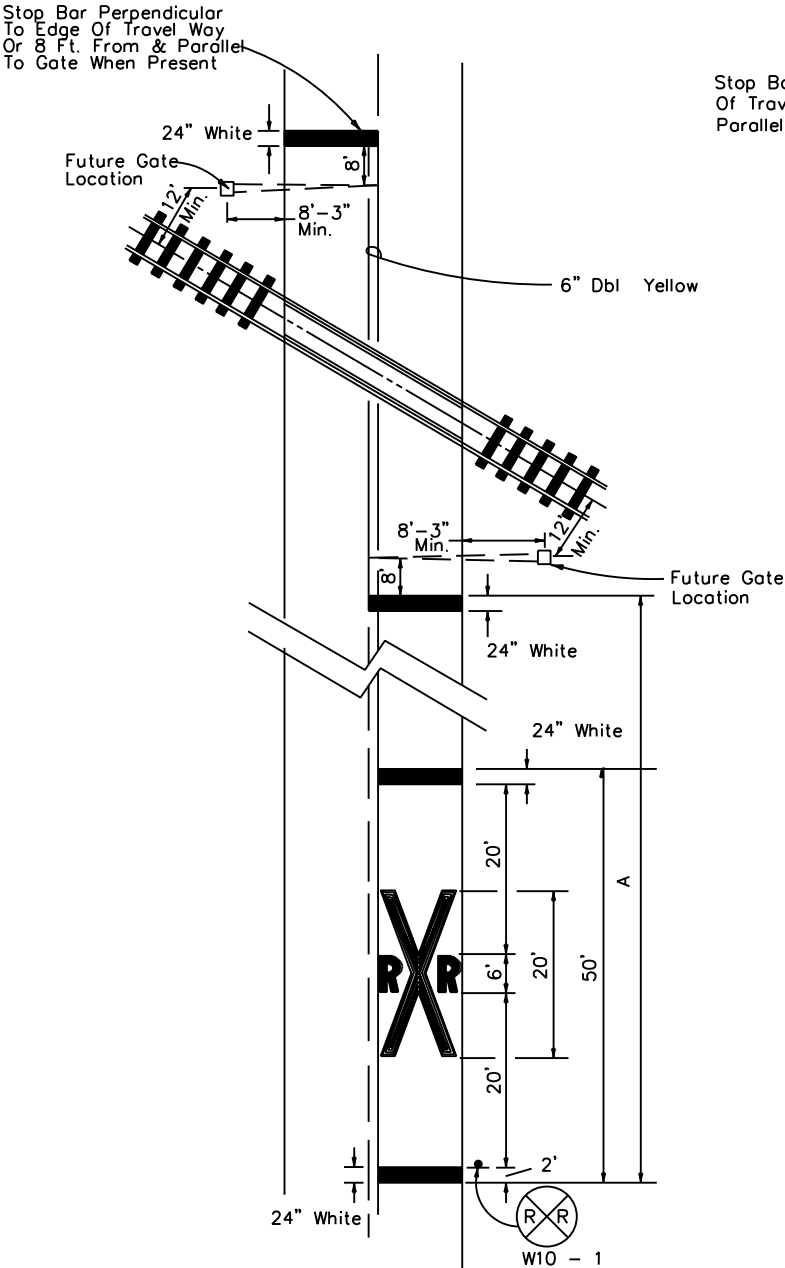
600 SERIES

**TYPICAL LOCATION PLAN FOR
HIGHWAY CROSSING SIGNALS I**

**SC600.1
SHT 5 OF 13**

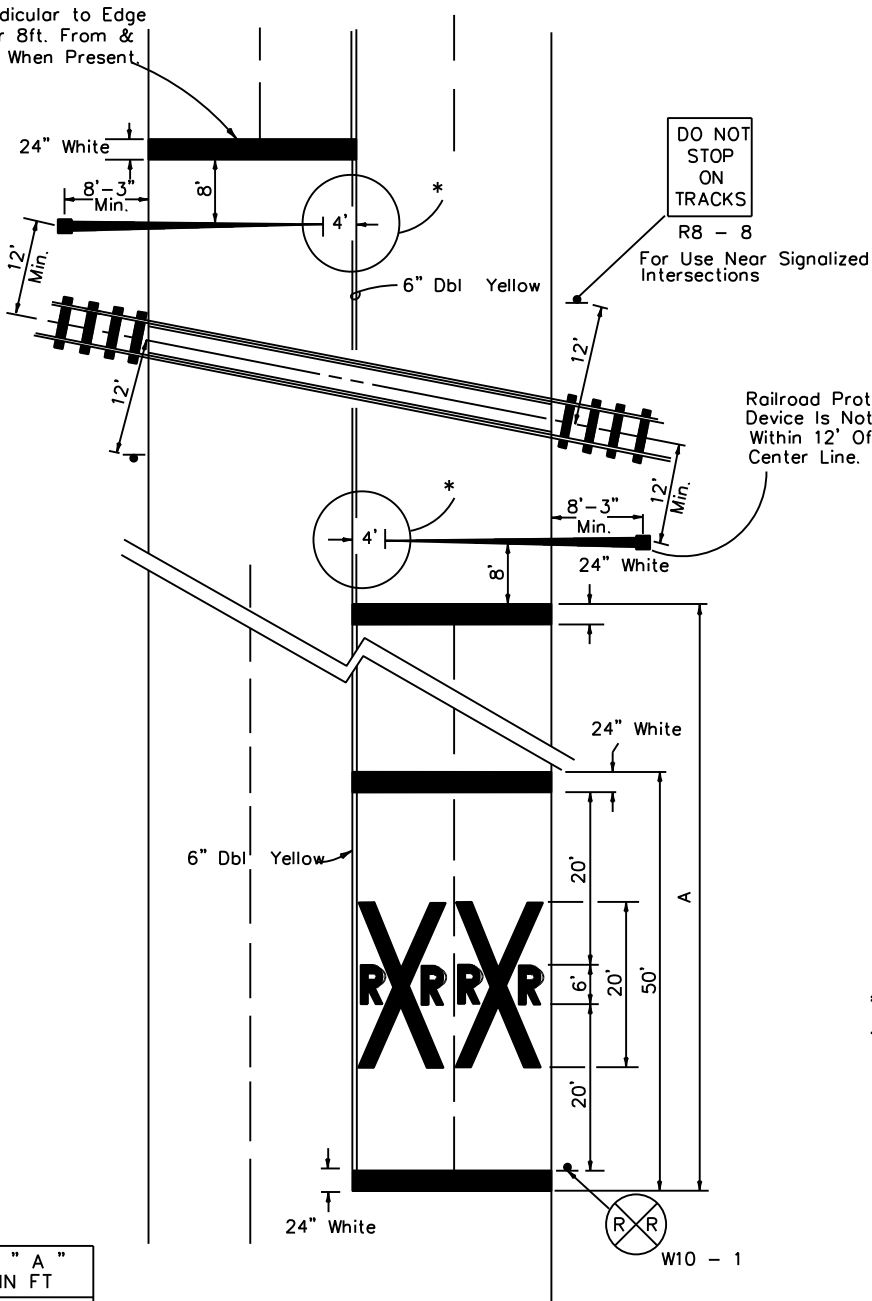
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07/15/13	XRL/TJF

RAILROAD CROSSING AT TWO (2) – LANE ROADWAY



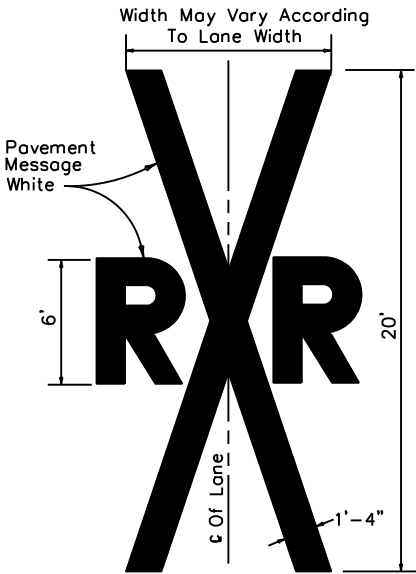
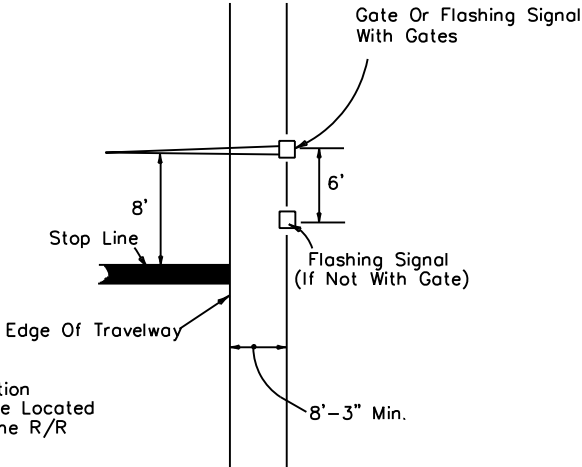
SPEED MPH	" A " IN FT
60	550
55	450
50	375
45	300
40	225
35	150
30	100
URBAN	50 MIN.

RAILROAD CROSSING AT MUTI-LANE ROADWAY



NOTE:
VEHICULAR APPROACH SPEED = 25 MILES PER HOUR (MPH)
THEREFORE "A" = 50' MINIMUM

RELATIVE LOCATION OF CROSSING TRAFFIC CONTROL DEVICES



NOTES:

- When computing pavement message, quantities do not include transverse lines.
- Placement of sign W10-1 in a residential or business district, where low speeds are prevalent, the W10-1 sign may be placed a minimum distance of 100 feet from the crossing. Where street intersection occur between the R R pavement message and the tracks an additional W10-1 sign and additional pavement message should be used
- Recommended location for sign FTP-38, 100 ft. Urban & 300 ft. Rural in advance of the crossing.
- A portion of the pavement markings symbol should be directly opposite the W10-1 sign.
- Recommended location for FTP-38 A or B signs, 100' urban and 300' rural. See index 17355 for sign details.
- Gate Length Requirements

* For two-way undivided sections:
The gate should extend to within 1' of the center line. On multilane approaches the maximum gate length may not reach to within 1' of the center line. For those cases, the distance from the gate to the center line shall be a maximum of 4'.

For one-way or divided sections:
The gate shall be of sufficient length such that the distance from the gate tip to the inside edge of pavement is a maximum of 4'.



GENESEE & WYOMING
SIGNAL & COMMUNICATION
STANDARDS REFERENCE MANUAL

Issue Date: 03-01-2009 Revised Date: 07-15-2013
Authorized: *Chit Harts*
Chief Engineer Signals and Communications

The material and equipment shown herein must meet or exceed all quality requirements. Any deviation from these standards must be submitted in writing and approved by the Railroad Director of Engineering Services prior to use.

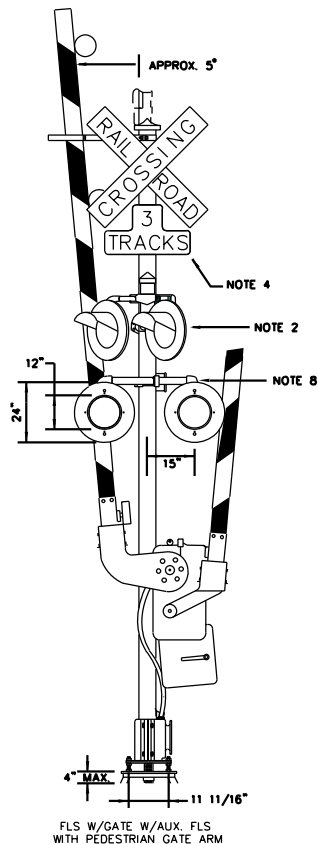
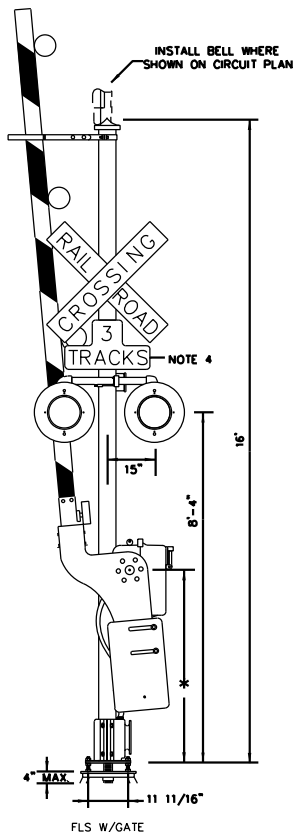
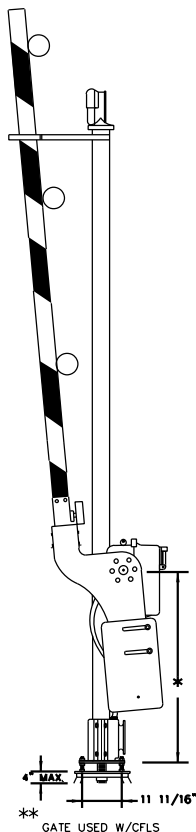
CROSSING WARNING DEVICES

600 SERIES

TYPICAL LOCATION PLAN FOR HIGHWAY CROSSING SIGNALS II

SC600.1
SHT 6 OF 13

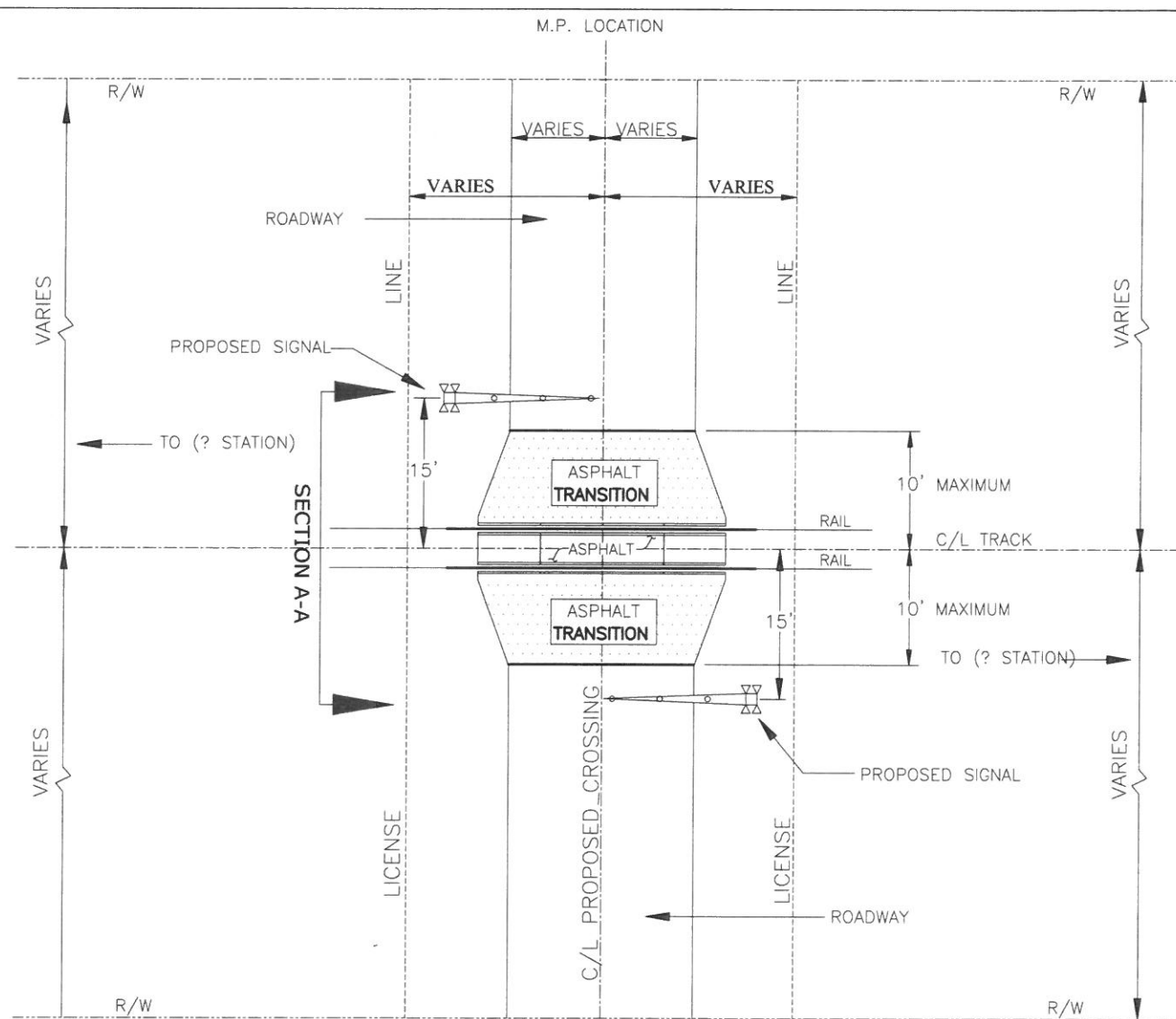
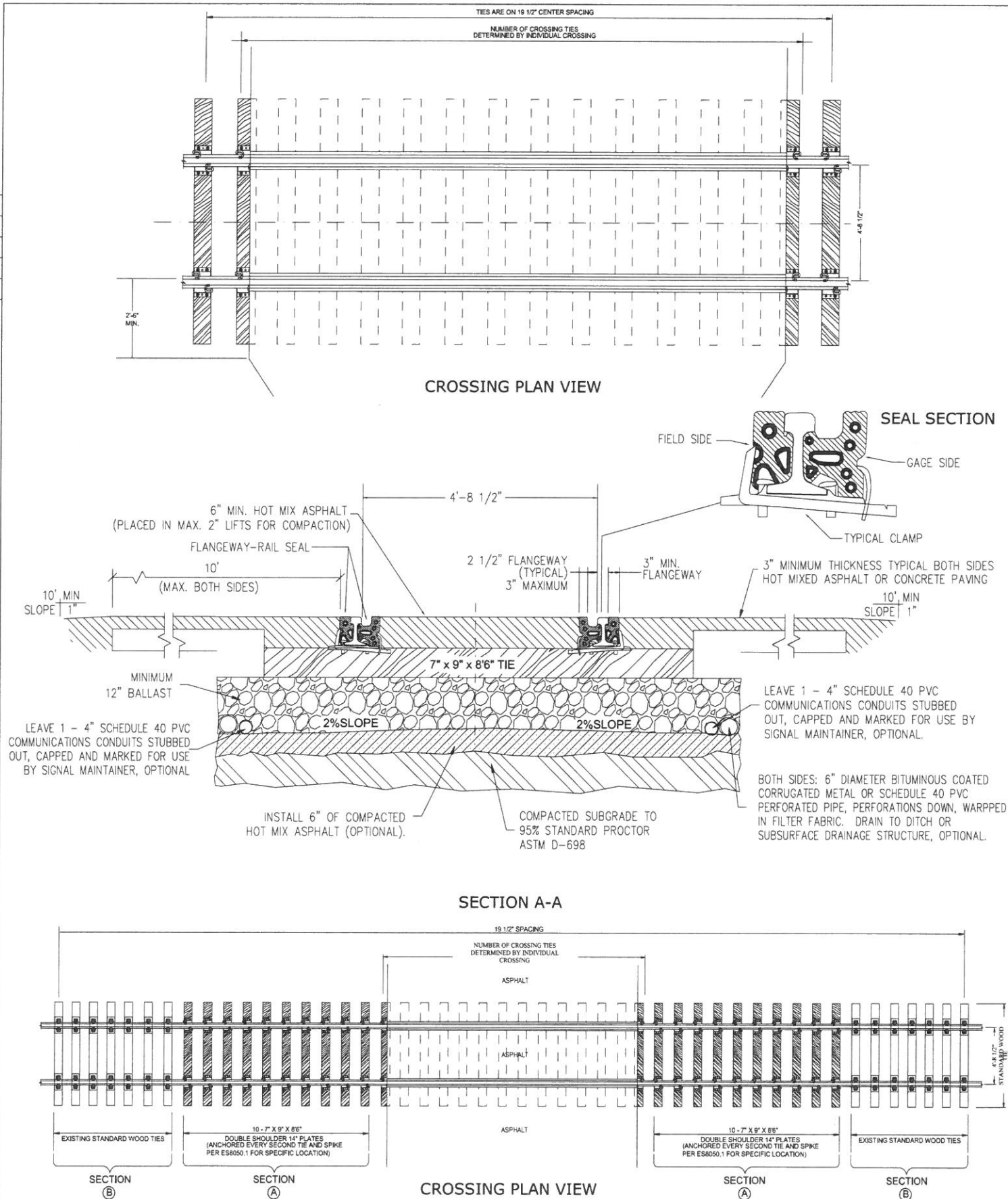
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07/15/13	XRL/TJF



- NOTE:
- GATE ARM LENGTH IS MEASURED FROM GATE MECHANISM CAM SHAFT TO END OF GATE ARM.
 - END OF GATE ARM SHALL BE LOCATED WITHIN 12" OF THE CENTERLINE OF ROADWAY OR FACE OF MEDIAN CURB, WHERE PRACTICAL.
 - END OF GATE ARM SHALL EXTEND TO CENTERLINE OF ROADWAY OR FACE OF MEDIAN CURB.
 - TOP OF FOUNDATION TO BE LEVEL WITH CROWN OF ROAD, (MAXIMUM 4" ABOVE TOP OF GROUND LEVEL.)
 - WHEN USED, SIDELIGHT ASSEMBLY TO BE PLACED SO AS NOT TO INTERFERE WITH GATE ARM OR REDUCE TRACK CLEARANCE. WHEN NEEDED, OFFSET ARMS ARE TO BE USED AND INSTALLED IN A WAY THAT SIDE BY SIDE LIGHTS STAY ON THE SAME VERTICAL PLANE WHILE MAINTAINING A 30" SEPARATION BETWEEN LIGHTS.
 - ALL PARTS TO BE ALUMINUM IN COLOR, EXCEPT VISORS AND BACKGROUNDS WILL BE FLAT BLACK.
 - TRACK SIGN TO BE USED WHEN TWO OR MORE TRACKS CROSS STREET.
 - GATE LAMPS SHALL BE 4" DIAMETER.
 - FLASHING LIGHT SIGNAL UNIT BACKGROUNDS-24" AND VISORS TO BE ALUMINUM.
 - LENS HORIZONTAL DOWNWARD DEFLECTION 30°/15°
 - WHEN AUXILIARY PEDESTRIAN GATE ARM IS USED, FLASHING LIGHT ARM MUST BE OFFSET.
 - BELL MUST BE ELECTRO MECHANICAL.
 - GATE MECHANISM SHOULD BE ADJUSTED SO THAT WHEN GATE IS IN FULL HORIZONTAL POSITION, THE GATE ARM RESTS BETWEEN 3'-6" TO 4'-6" ABOVE CROWN OF ROADWAY.
 - PEDESTRIAN GATE ARM MUST NOT BLOCK ENTIRE WALKWAY. AN EXIT PATH MUST BE PROVIDED FOR PEDESTRIANS WHO ARE IN TRANSIT WHEN GATES ACTIVATE.
 - BACKLIGHTS & BELL LOCATIONS ON CANTILEVER & GATES TO BE DETERMINED ON DESIGN OR BY THE CHIEF ENGINEER.



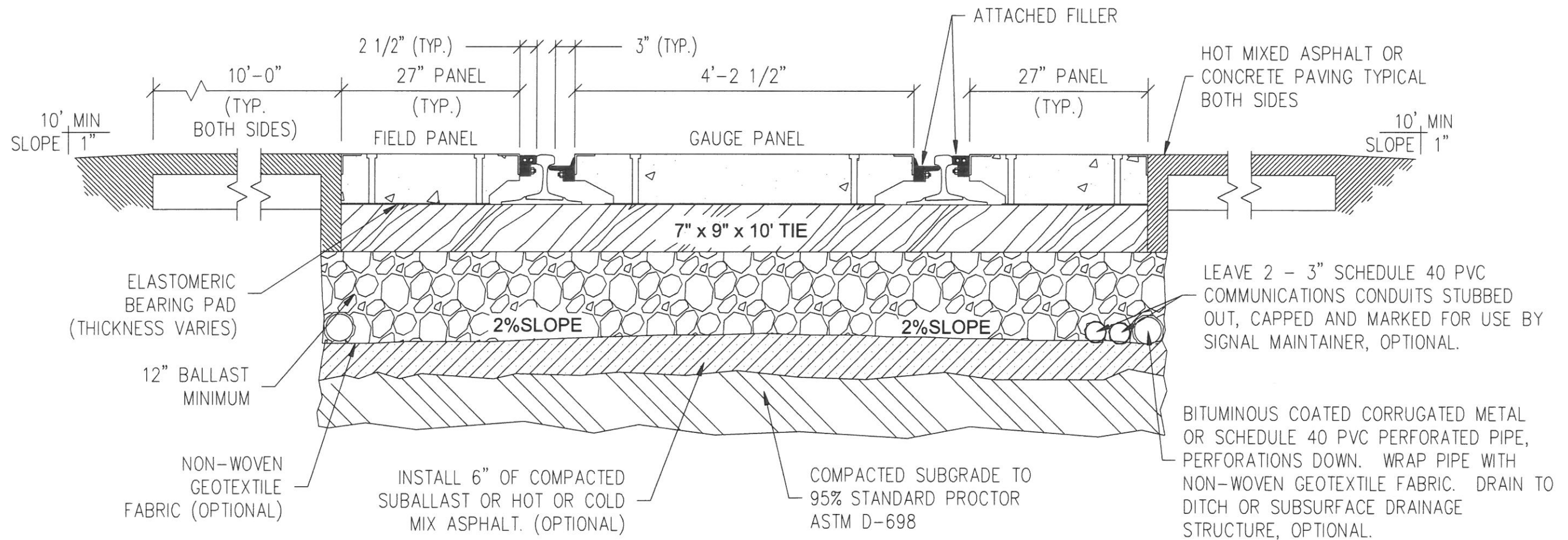
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- NOTES
- CROSSING SITE IS TO BE INSPECTED PRIOR TO START OF INSTALLATION TO DETERMINE THAT PROPER DRAINAGE AND SURFACE SUPPORT IS PROVIDED, TRACK GRADE IS UNIFORM.
 - FOR COMPLETE RENEWAL OF CROSSING & NEW CONSTRUCTION: TRACK STRUCTURE INCLUDING RAIL, OTM, BALLAST AND ROADBED MUST BE IN EXCELLENT CONDITION. ALL TIES MUST BE 8' FT. LONG, SPACED AT 19 1/2" CENTERS AND EXTEND 10 TIES BEYOND END OF CROSSING. NEW 7"x9"x86" TRACKS TIES TO BE INSTALLED IF NECESSARY. IF CONDITIONS WARRANT, SITE TO BE OVER-EXCAVATED AND CROSSING DRAINAGE SYSTEM INSTALLED USING COMPACTED, WELL-GRADED GRANULAR FILL: SUBBALLAST, AND PERFORATED DRAINAGE PIPE (IF REQUIRED) INSTALLED PER DETAILS OF THIS DRAWING. ADDITIONAL SITE DRAINAGE INCLUDING PROPER DRAINAGE AT EACH QUADRANT OF CROSSING SHALL BE COMPLETED TO ENSURE CROSSING DRAINAGE. SUBBALLAST SECTION TO BE A MINIMUM OF 4" WHEN COMPLETE RENEWAL OF EXISTING CROSSING. FOR NEW CONSTRUCTION, SUBBALLAST SECTION TO BE IN ACCORDANCE WITH CONSTRUCTION DESIGN STANDARDS OR AS REQUIRED BY STATE OR LOCAL AGENCIES.
 - IN ALL INSTALLATIONS THE RAIL JOINTS SHOULD FALL OUTSIDE THE CROSSING AREA A MINIMUM OF 25 FEET FROM THE END OF THE CROSSING.
 - USE OF CLAMPS ARE REQUIRED IN EACH TIE CRIB WITHIN THE LIMITS OF THE CROSSING. CLAMPS MUST BE ATTACHED PRIOR TO PLACEMENT OF ASPHALTIC CONCRETE (SEE SECTION DETAILS).
 - HOT MIX ASPHALTIC CONCRETE MUST COMPLY WITH STATE D.O.T. SPECIFICATIONS AND BE PLACED IN 2 INCHES MAXIMUM LIFTS. CARE MUST BE TAKEN DURING COMPACTION OF ASPHALT TO PREVENT DAMAGE TO HOLD DOWN CLAMPS OR RUBBER. ASPHALT SHOULD BE ROLLED PARALLEL TO THE RAIL UNTIL THE FINAL LIFT AND COMPACTION. FINAL LIFT OF ASPHALT IS TO BE LEVEL WITH THE TOP OF RAIL FOR 30 INCHES FROM THE FIELD SIDE OF THE RAIL.
 - SLOPE EDGE OF PAVING TO RETURN TO ORIGINAL EDGE OF PAVING ALIGNMENT. LENGTH OF TRANSITION WILL DEPEND ON LOCAL CONDITIONS.
 - AT THE TIE-IN POINT WITH THE EXISTING PAVEMENT, THE OLD PAVEMENT MUST BE CUT DOWN A MINIMUM 2" TO ELIMINATE A FEATHER EDGE ON THE NEW PAVEMENT.
 - USE STATE D.O.T. SPECIFICATION FOR THE ASPHALT SPRAY TACK COAT.
 - ENVIRONMENTAL RULES OF THE GOVERNMENT BODY HAVING AUTHORITY WILL BE FOLLOWED WHEN DISPOSING OF THE PAVEMENT REMOVED FROM THE CROSSING.
 - MATERIAL USED ON GAGE SIDE RAIL SEAL SHALL HAVE AN ELECTRICAL RESISTANCE IF A MINIMUM OF 10 MEGOHMS AT 500 VOLTS DC.
 - REPORT CROSSING GATE MALFUNCTIONS TO RAIL AMERICA HOT LINE AT 1-800-800-3490.
 - ALL EXCEPTIONS TO THIS PLAN MUST BE APPROVED BY ENGINEERING SERVICES.
- ORDERING NOTE:
- RUBBER RAIL SEAL CROSSING SECTIONS ARE TO BE ORDERED BY "TRACK FEET" IN 16'-0" INCREMENTS. EACH 16'-0" INCREMENT WILL INCLUDE (2) GAGE & (2) FIELD SIDE RAIL SEAL SECTIONS, (20) CLAMPS & ANY REQUIRED HARDWARE TO CONNECT THE SECTIONS TOGETHER.
- GENERAL NOTES
- NO WORK WILL BE PERMITTED ON RAILROAD RIGHT-OF-WAY WITHOUT A FLAGMAN.

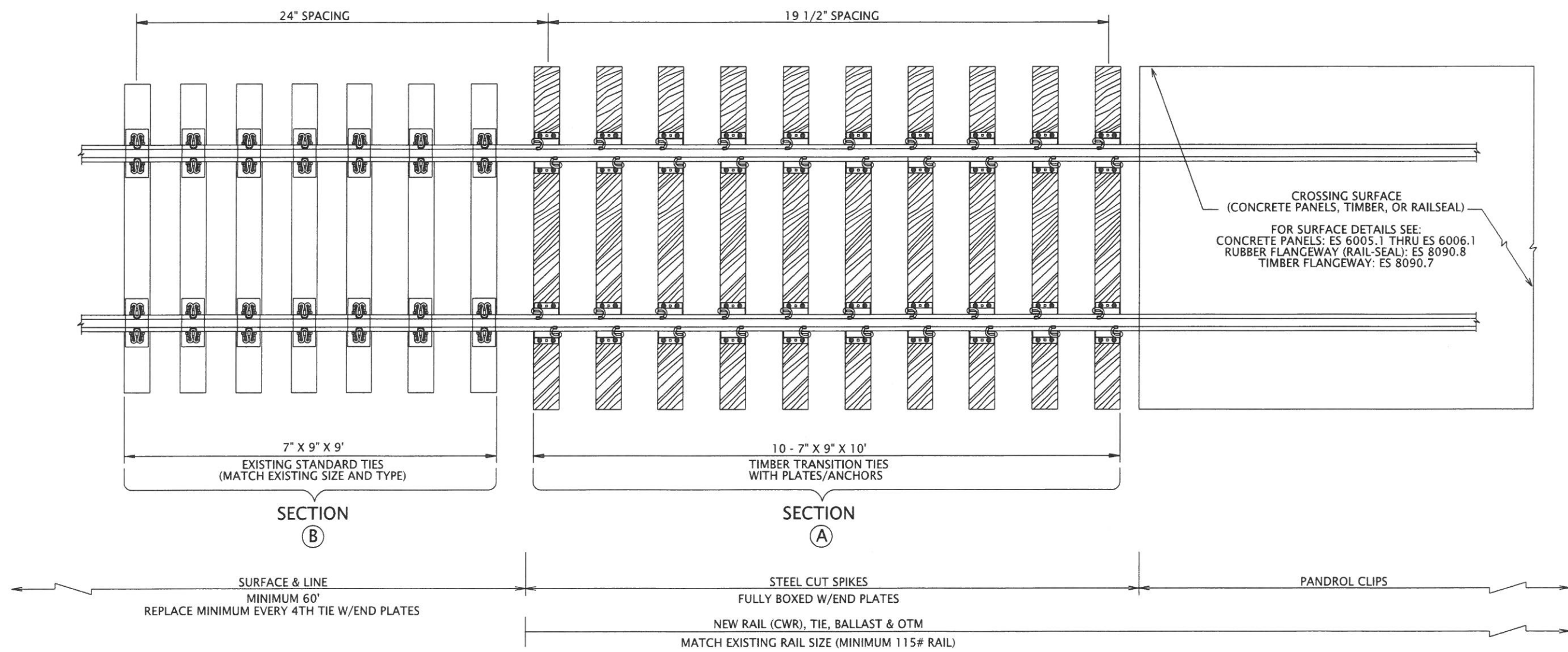
	GENESEE & WYOMING ENGINEERING DEPARTMENT STANDARDS REFERENCE MANUAL		Issue Date: 06-05-2012 Revised Date: 10/07/2013	The material and equipment shown herein must meet or exceed all quality requirements. Any deviation from these standards must be submitted in writing and approved by the AVP - Engineering Design or Regional V.P. - Engineering prior to use.	TIES & ROAD CROSSINGS SERIES 6000	TYPICAL X-ING PLAN & SECTION VIEWS PUBLIC CROSSING (RUBBER FLANGEWAY-RAIL SEAL)	ES6005.3 SHT 8 OF 13
	Authorized: <i>James S. Romaine</i> AVP - ENGINEERING DESIGN						

FILE
ES6006.1
REVISIONS
-09-2016 KAB



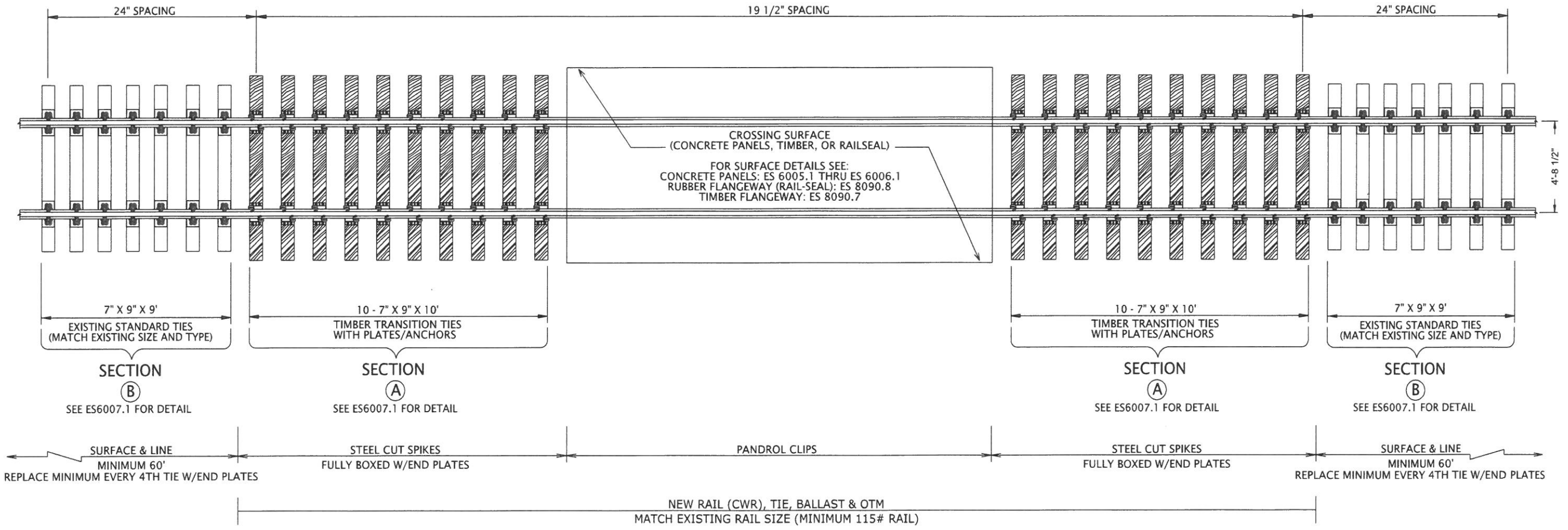
NOTE:
Concrete Crossing Panels will be Omni ECR Type or approved equal accepted by the Director Engineering Services. Reference Omni part No. 10-1469-00 ECR

FILE	
ES6007.1	
REVISIONS	
11-18-2011	XRL/TJF
09-09-2016	KAB



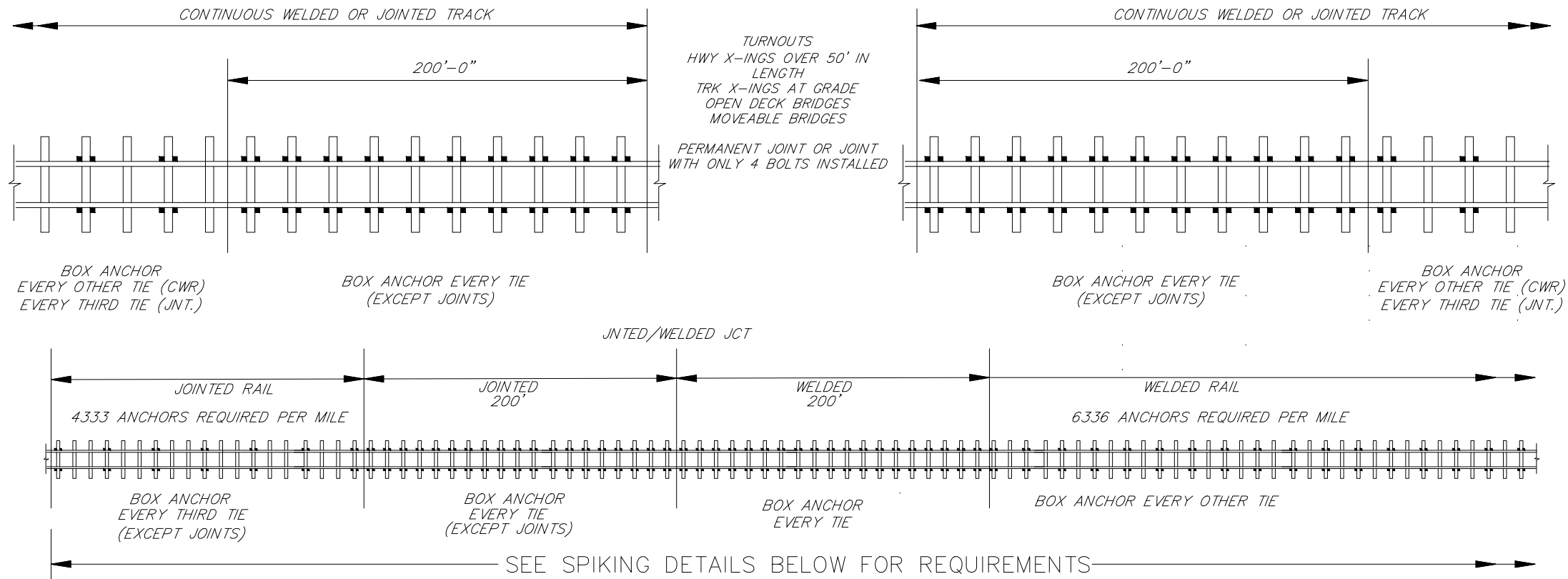
DETAIL PLAN

FILE	
ES6007.1	
REVISIONS	
05/27/2010	
-18-2011	XRL/TJF
-09-2016	KAB



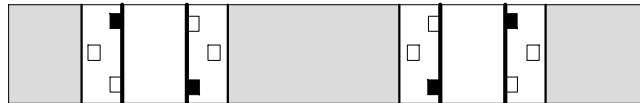
CROSSING PLAN VIEW

FILE	
ES8050.1	
REVISIONS	
11-15-2010	TJF/XRL
06-28-2011	TJF/XRL
09-06-2013	LSR/GRSI
04-07-2015	AWC/GRSI



SIDE, YARD & INDUSTRY TRACKS SPIKING PATTERNS

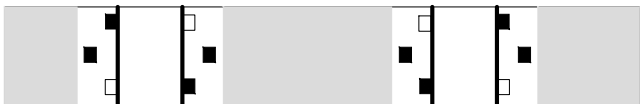
Spec #ST-1 – Tangent and Curves less than 2°



Spec #ST-2 – Curves 2° and less than 13°



Spec #ST-3 – Curves 13° and greater



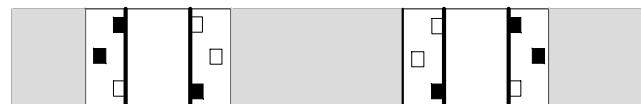
If plate configuration does not allow pattern, perform spiking pattern similar to required pattern using the same number of spikes if possible.

MAIN TRACK & SIDING SPIKING PATTERNS

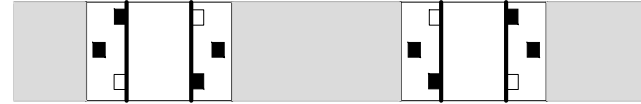
Spec #MT-1 – Tangent and Curves less than 2°



Spec #MT-2 – Curves 2° and less than 6°



Spec #MT-3 – Curves 6° and greater



NOTES:

- 1) ON JOINTED RAIL ABUTTING A COMPLETED LENGTH OF CONTINUOUS WELDED RAIL (CWR), 200' IN EACH DIRECTION MUST BE FULLY BOX ANCHORED (EXCEPT JOINT TIES) AND THEREAFTER EVERY THIRD TIE MUST BE BOX ANCHORED.
- 2) OTHER REQUIREMENTS MAY APPLY (PROJECT SPECIFIC).
- 3) REQUIRED TIE SPACING IS 19-1/2".
- 4) 80' JOINTED RAIL LENGTHS WILL BE ANCHORED PER CWR STANDARD.
- 5) SPIKE 15 TIES AHEAD OF POINT OF SWITCH:
 - WITH SPIKING PATTERN ST-2 ON YARD TRACKS
 - WITH SPIKING PATTERN MT-2 ON ALL OTHER TRACKS
- 6) OPEN DECK BRIDGES WILL BE BOX ANCHORED ONLY AT TIES THAT ARE HOOK BOLTED TO THE SPAN (GENERALLY EVERY SECOND TIE). SPACING MAY BE EXTENDED TO EVERY THIRD TIE IF REQUIRED TO MATCH HOOK BOLT SPACING.
- 7) ALL TRACKS, WHICH ARE NOT IN COMPLIANCE WITH THIS ANCHORING POLICY, WILL BE BROUGHT UP TO STANDARD DURING THE NEXT RAIL LAYING OPERATION, CURVE PATCH, OR BRIDGE TIMBERING OPERATION. DURING TIMBERING OPERATIONS, MISSING ANCHORS WILL BE REPLACED TO MATCH THE PATTERN CURRENTLY IN THE TRACK.
- 8) SPIKING PATTERN ON OPEN DECK BRIDGES:
 - SPEC #MT-2 – CURVES 2° AND LESS
 - SPEC #MT-3 – CURVES 2° AND OVER
- 9) SPIKING PATTERN IN TURNOUTS:
 - SPEC #MT-1 – TANGENT
 - SPEC #MT-2 – CURVE
- 10) SPIKING PATTERN IN ROAD CROSSINGS AT GRADE:
 - SPEC #MT-1 WITH 1 ADDITIONAL GAGE SIDE HOLDING SPIKE
- 11) ADD ADDITIONAL SPIKES AS NEEDED TO SATISFY LOCAL CONDITIONS.



GENESEE & WYOMING
ENGINEERING DEPARTMENT
STANDARDS REFERENCE MANUAL

Issue Date: 06-29-2009 Revised Date: 04-20-2015

Authorized:

Jaime L. Romaine
VP – ENGINEERING

The material and equipment shown herein must meet or exceed all quality requirements. Any deviation from these standards must be submitted in writing and approved by the VP – Engineering or Regional V.P. – Engineering prior to use.

MISCELLANEOUS

SERIES 8000

TYPICAL TRACK ANCHOR AND
SPIKING PATTERNS

ES8050.1

SHT 12 OF 13

(SEE ES6001.1 FOR DETAILS).
WHERE EXISTING TRACK OR ROADWAY
CROSSDRAIN PIPES DO NOT EXIST, CONTRACTOR
MUST ENSURE THAT ALL GRADING AND GRAVEL
OR FILL MATERIAL PLACEMENT IS EFFECTIVELY
PLACED TO ALLOW PROPER DRAINAGE AWAY
FROM ROADWAY AND TRACK STRUCTURE, AND
AVOID ANY WATER COLLECTION OR
INFILTRATION OF WATER OR FOREIGN MATERIAL
INTO OR TOWARD THE ROADWAY OR TRACK
STRUCTURE.



- 1) LIMITS OF GRADING/FILL TO BE SUFFICIENT TO PROVIDE PROPER DRAINAGE OF CROSSING SITE.
- 2) ENSURE CROSSING SITE IS DRESSED CLEAN AND NEAT TO AVOID DROP-OFFS OR TRIPPING HAZARDS.