

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION

PLAN AND PROFILE OF
U.S. ROUTE 6 (WAREHAM ROAD & MARION ROAD)
(BRIDGE NO. M-05-001=W-06-013 & W-06-016)

IN THE CITY/TOWN OF
MARION & WAREHAM
PLYMOUTH COUNTY

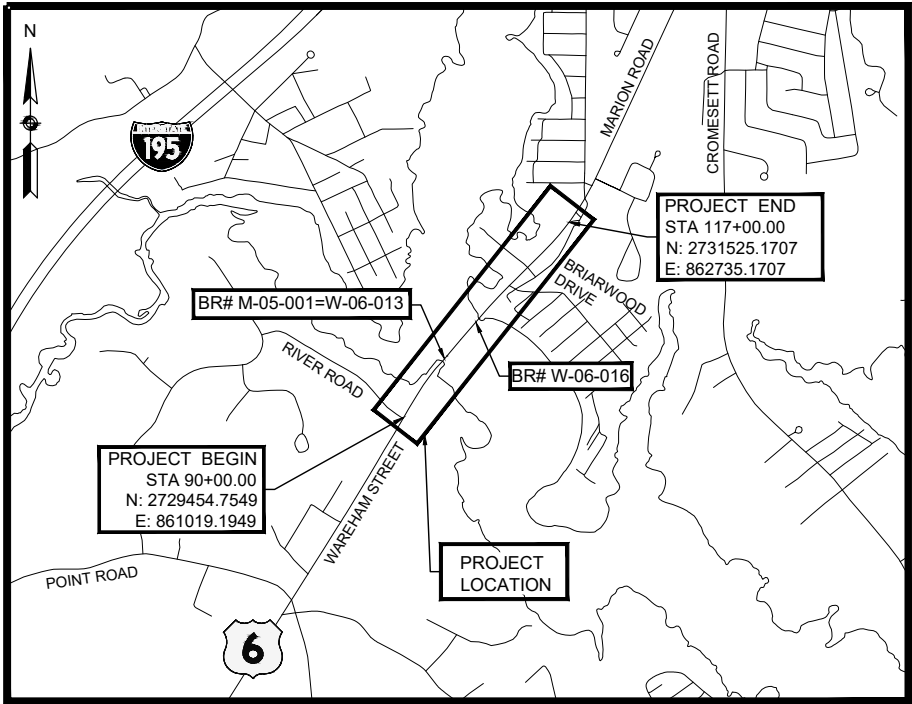
FEDERAL AID PROJECT NO.

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD
DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION DRAWINGS, MASSDOT
TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR
LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

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- EXISTING SITE NOTES:
- HTL = 3.78'
 - MHHW = 2.09'
 - MHW = 1.65'
 - LMSL = -0.41'
 - SALINITY = 5ppt - 25ppt
 - REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
 - DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



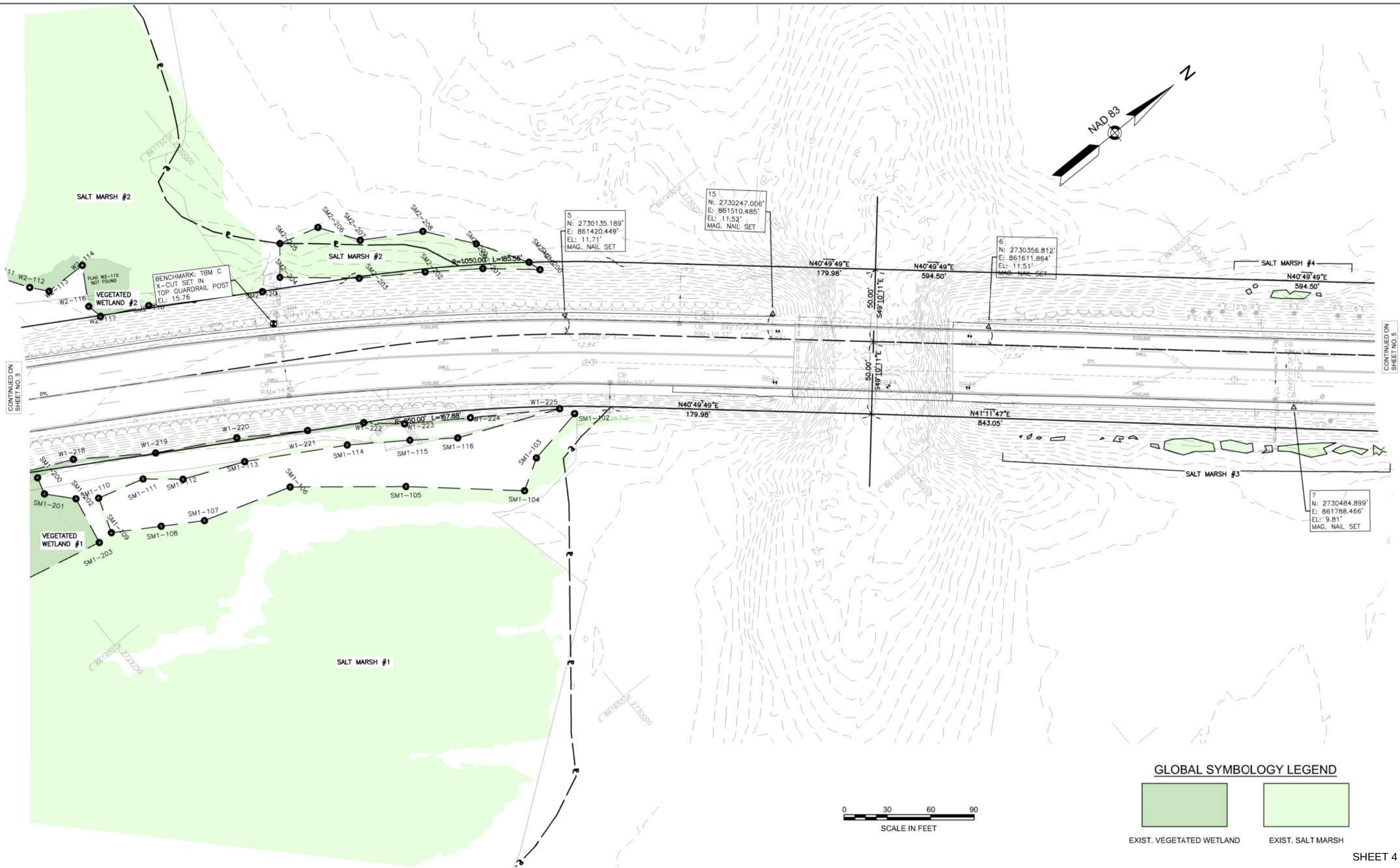
0 1000 2000 3000 4000
SCALE: 1" = 1000'

LENGTH OF PROJECT = 2,975.00 FEET = 0.563 MILES

DESIGN DESIGNATION - (U.S. ROUTE 6)

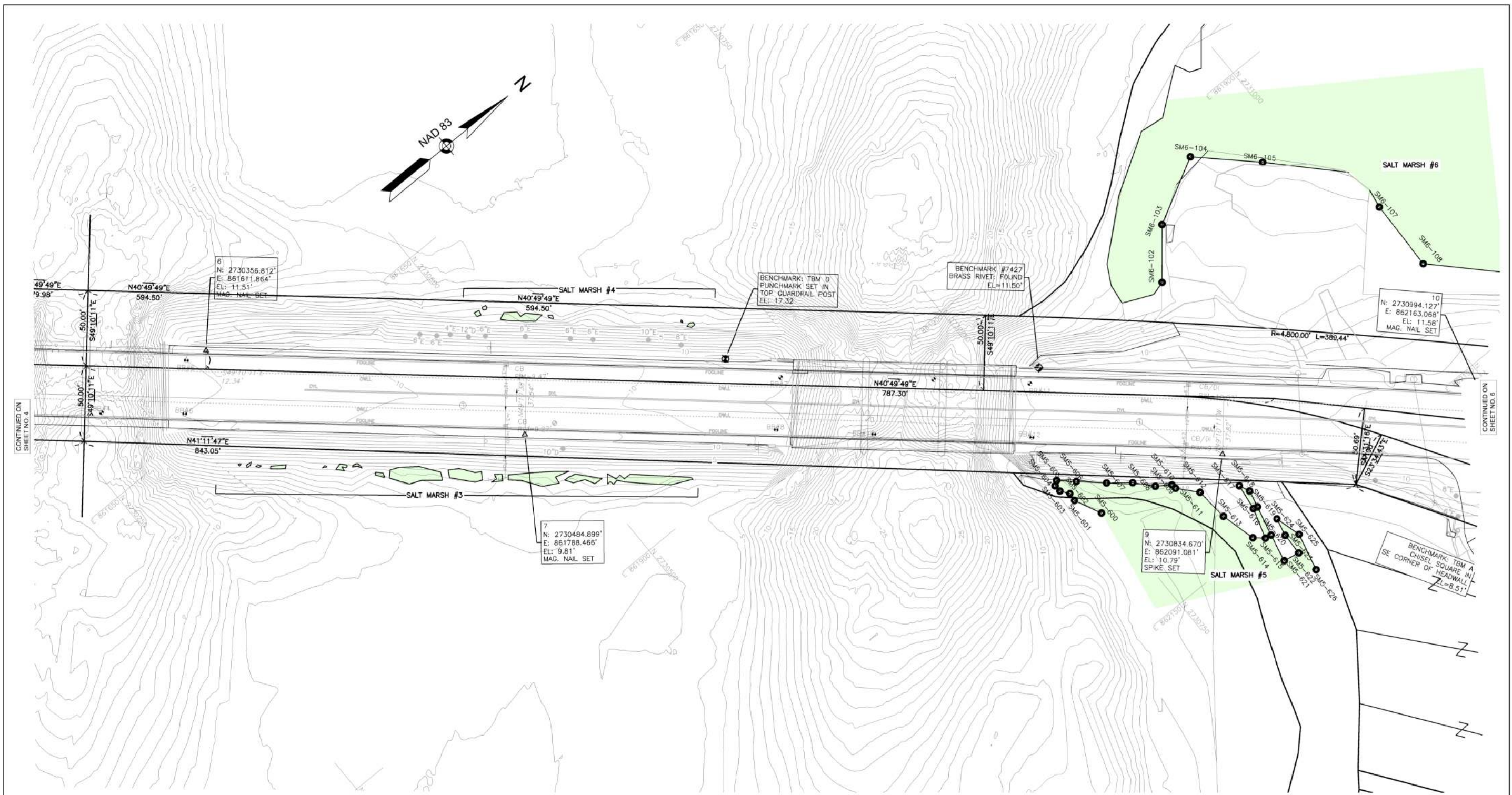
DESIGN SPEED	55 MPH
ADT (2024)	9,800
ADT (2044)	11,964
K	9%
D	51%
T (PEAK HOUR)	2.45%
T (AVERAGE DAY)	2.3%
DHV	930
DDHV	450
FUNCTIONAL CLASSIFICATION	MAJOR COLLECTOR/MINOR ARTERIAL

	10/20/2023	401/404 PERMIT PLANS	-
	DATE	DESCRIPTION	REV #
	 Massachusetts Department of Transportation Highway Division		
PLANS PREPARED BY  100 HIGH STREET, BOSTON, MA 02110	APPROVED		
	CHIEF ENGINEER	DATE	



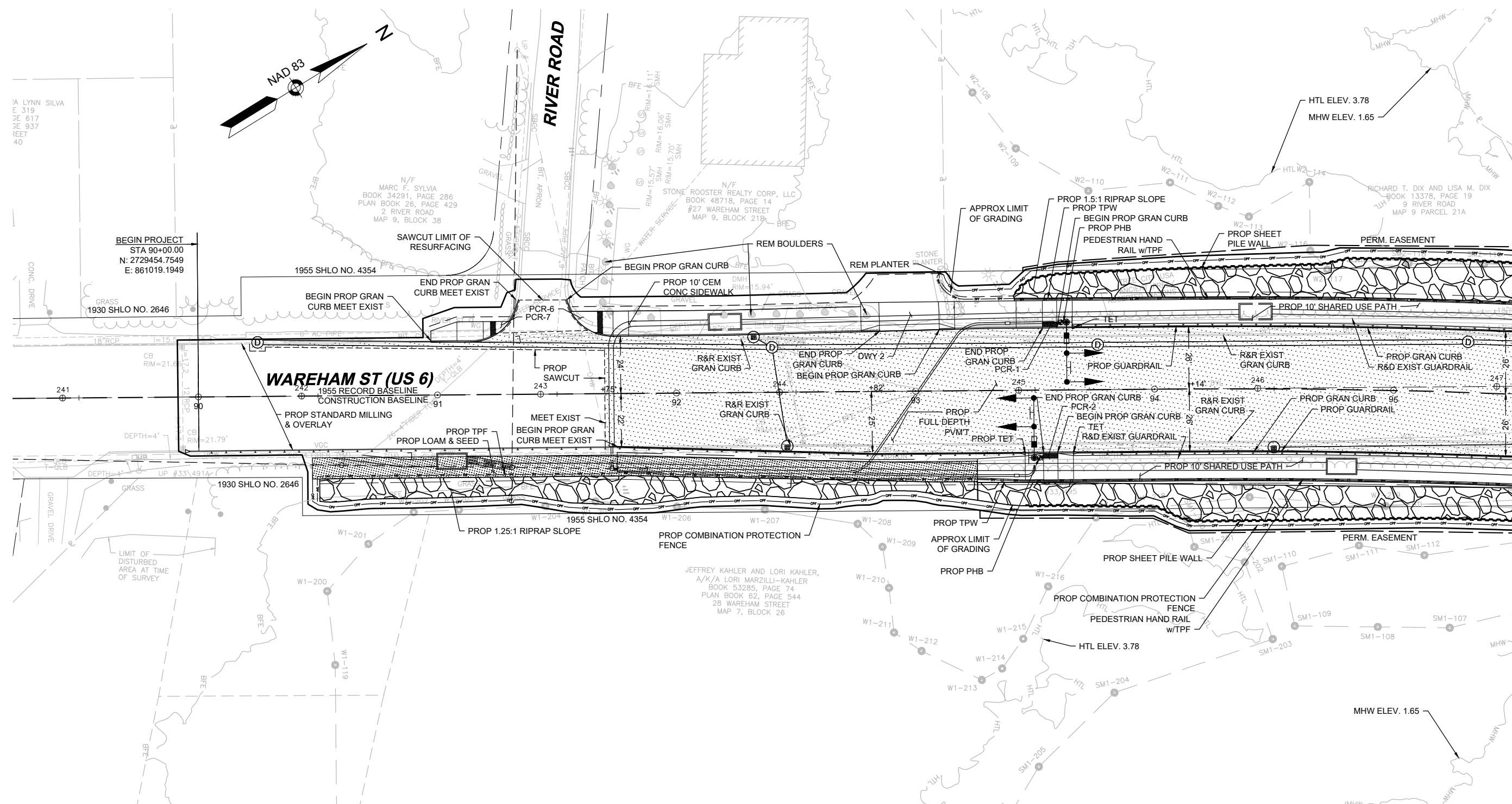
CONTINUED ON
SHEET NO. 3

CONTINUED ON
SHEET NO. 5

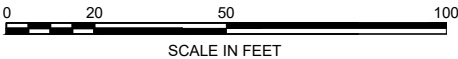




- EXISTING SITE NOTES:
1. HTL = 3.78'
 2. MHHW = 2.09'
 3. MHW = 1.65'
 4. LMSL = -0.41'
 5. SALINITY = 5ppt - 25ppt
 6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
 7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



- NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
 - HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.



CONTINUED ON
SHEET NO. 9

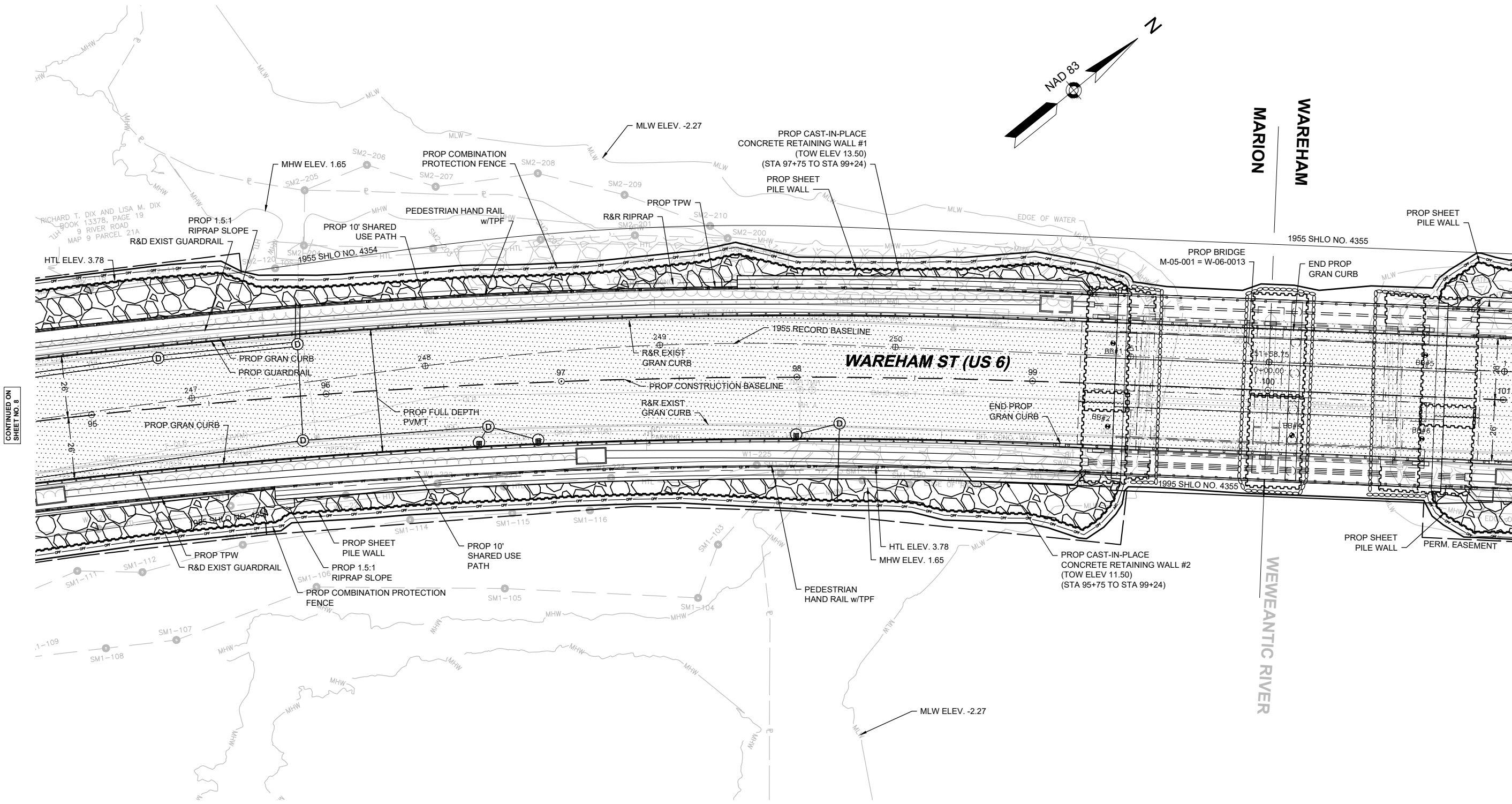


MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

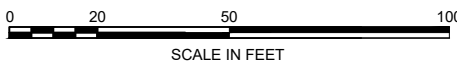
HIGHWAY
CONSTRUCTION PLAN SHEET 1 OF 5

SHEET 8

- EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



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MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
CONSTRUCTION PLAN SHEET 2 OF 5

1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'

5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH =
SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS
BAY COALITION / NOAA /
TIDAL FLUSHING STUDY

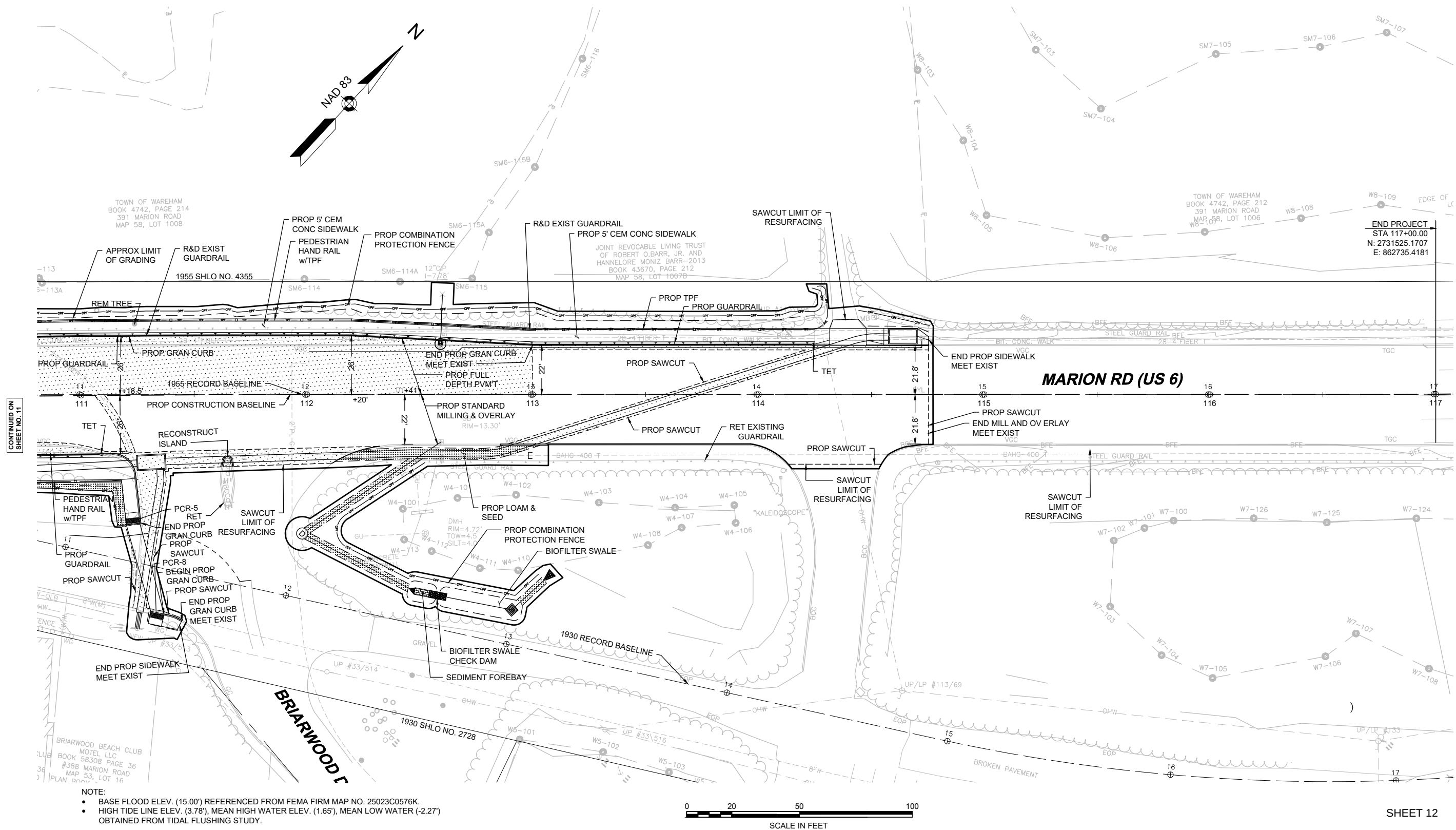


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EXISTING SITE NOTES:

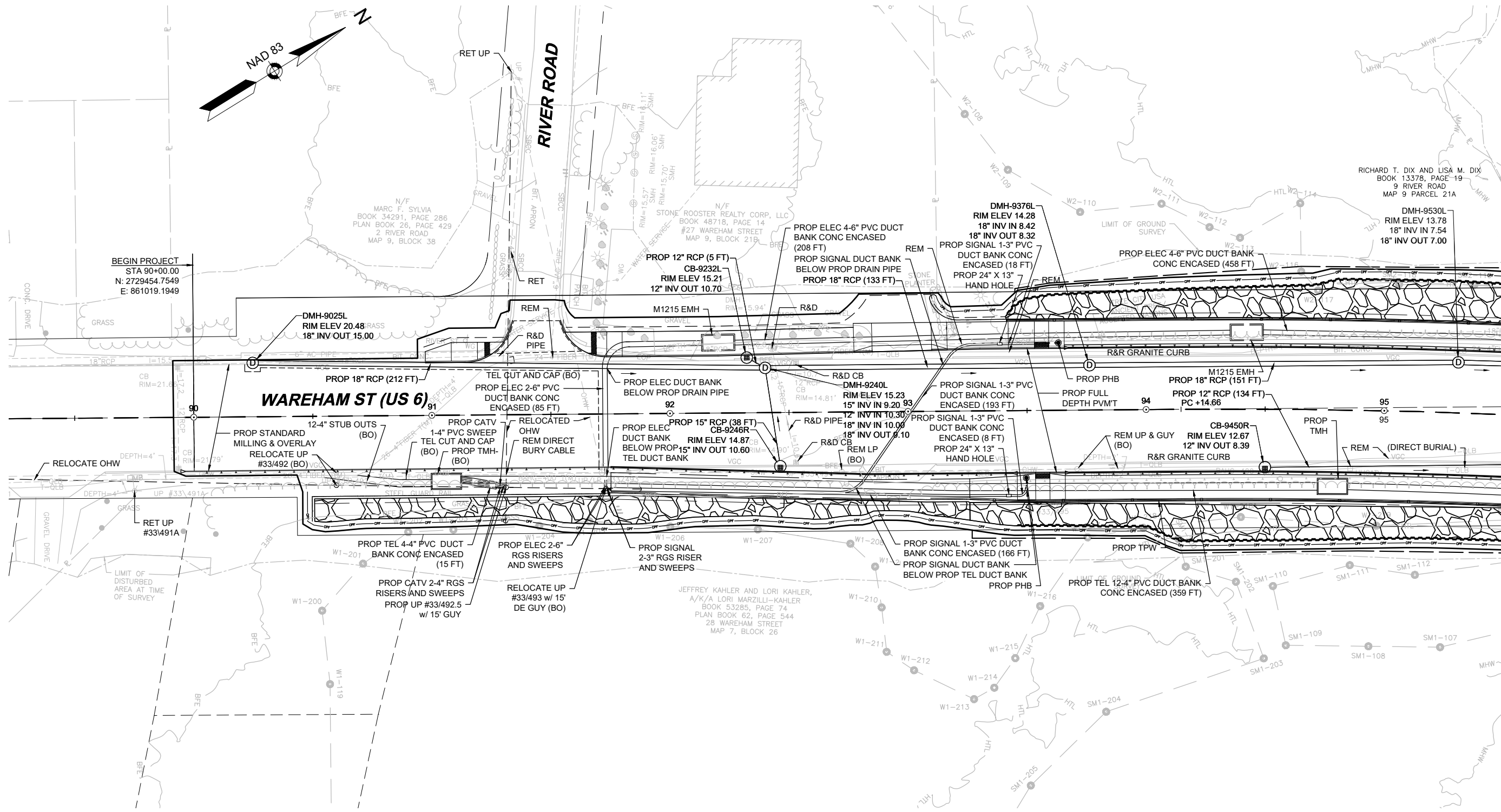
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'

5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



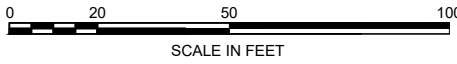
SHEET 12

- EXISTING SITE NOTES:
1. HTL = 3.78'
 2. MHHW = 2.09'
 3. MHW = 1.65'
 4. LMSL = -0.41'
 5. SALINITY = 5ppt - 25ppt
 6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
 7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



NOTE:

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SHEET 13

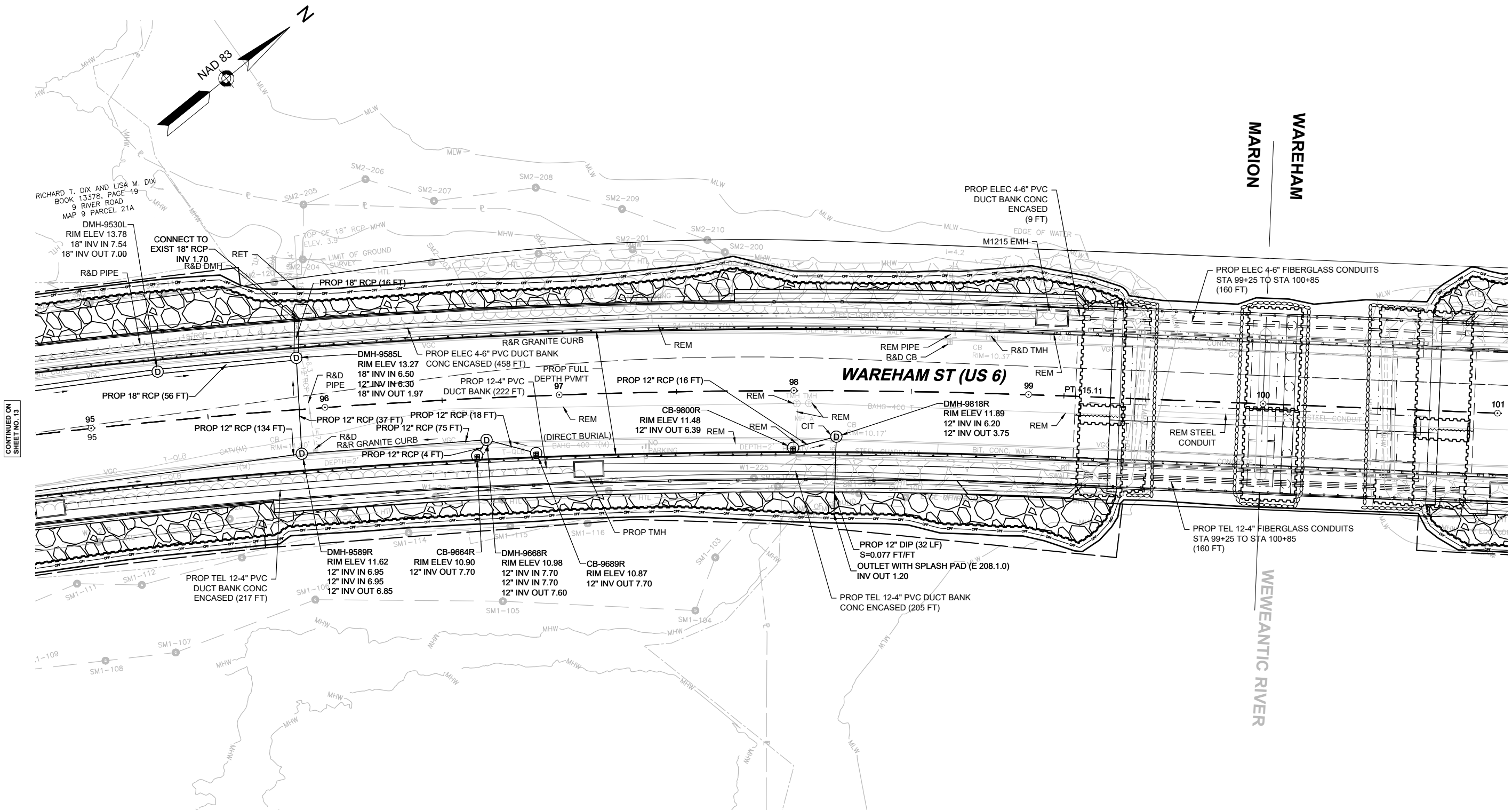


MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
DRAINAGE AND UTILITY PLAN SHEET 1 OF 5

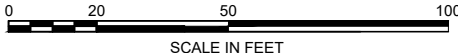
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- EXISTING SITE NOTES:
1. HTL = 3.78'
 2. MHHW = 2.09'
 3. MHW = 1.65'
 4. LMSL = -0.41'
 5. SALINITY = 5ppt - 25ppt
 6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
 7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



NOTE:

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- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.



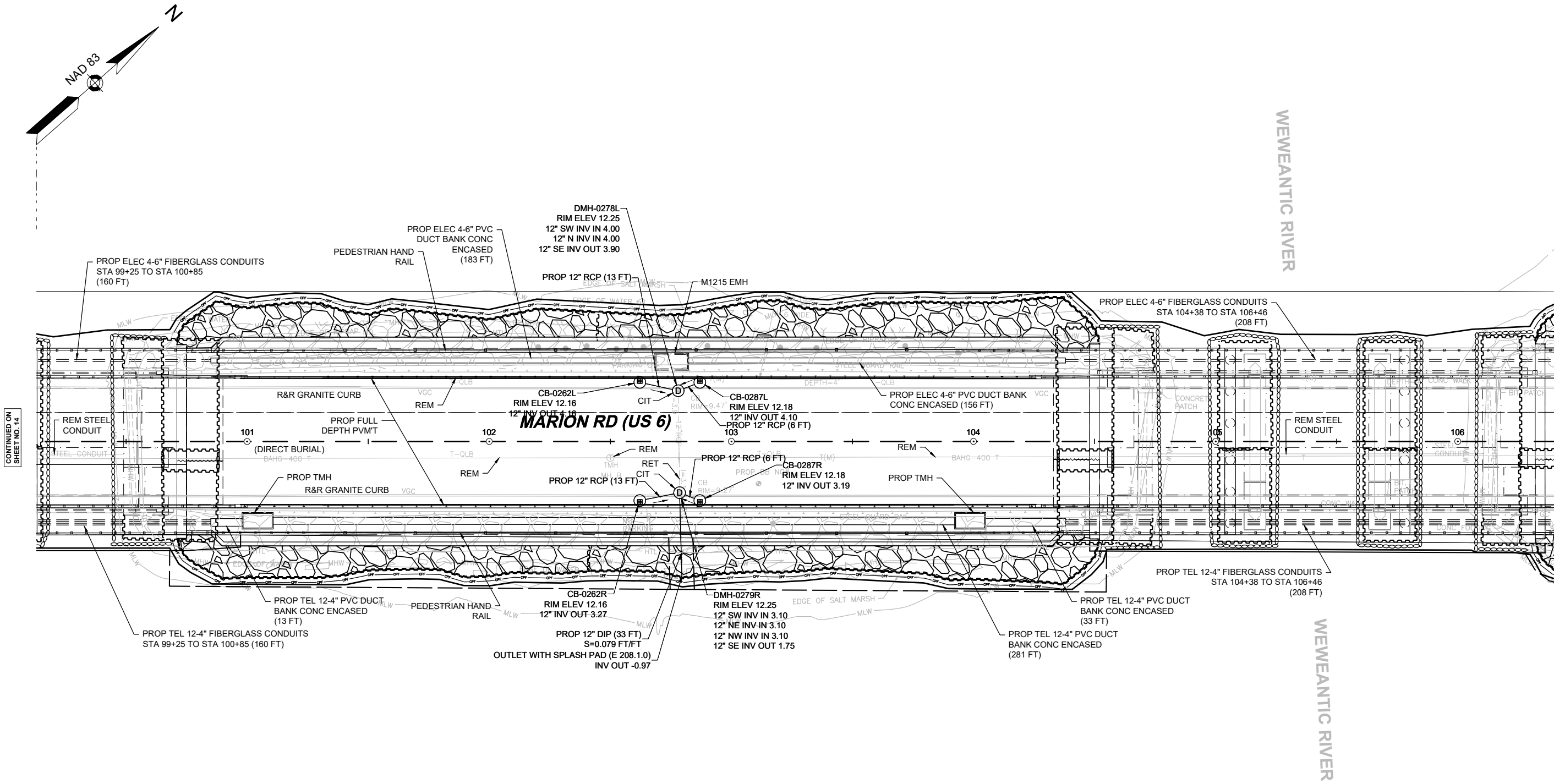
SHEET 14



MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

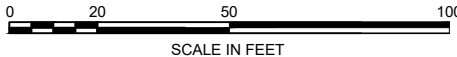
HIGHWAY
DRAINAGE AND UTILITY PLAN SHEET 2 OF 5

- EXISTING SITE NOTES:
1. HTL = 3.78'
 2. MHHW = 2.09'
 3. MHW = 1.65'
 4. LMSL = -0.41'
 5. SALINITY = 5ppt - 25ppt
 6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
 7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



NOTE:

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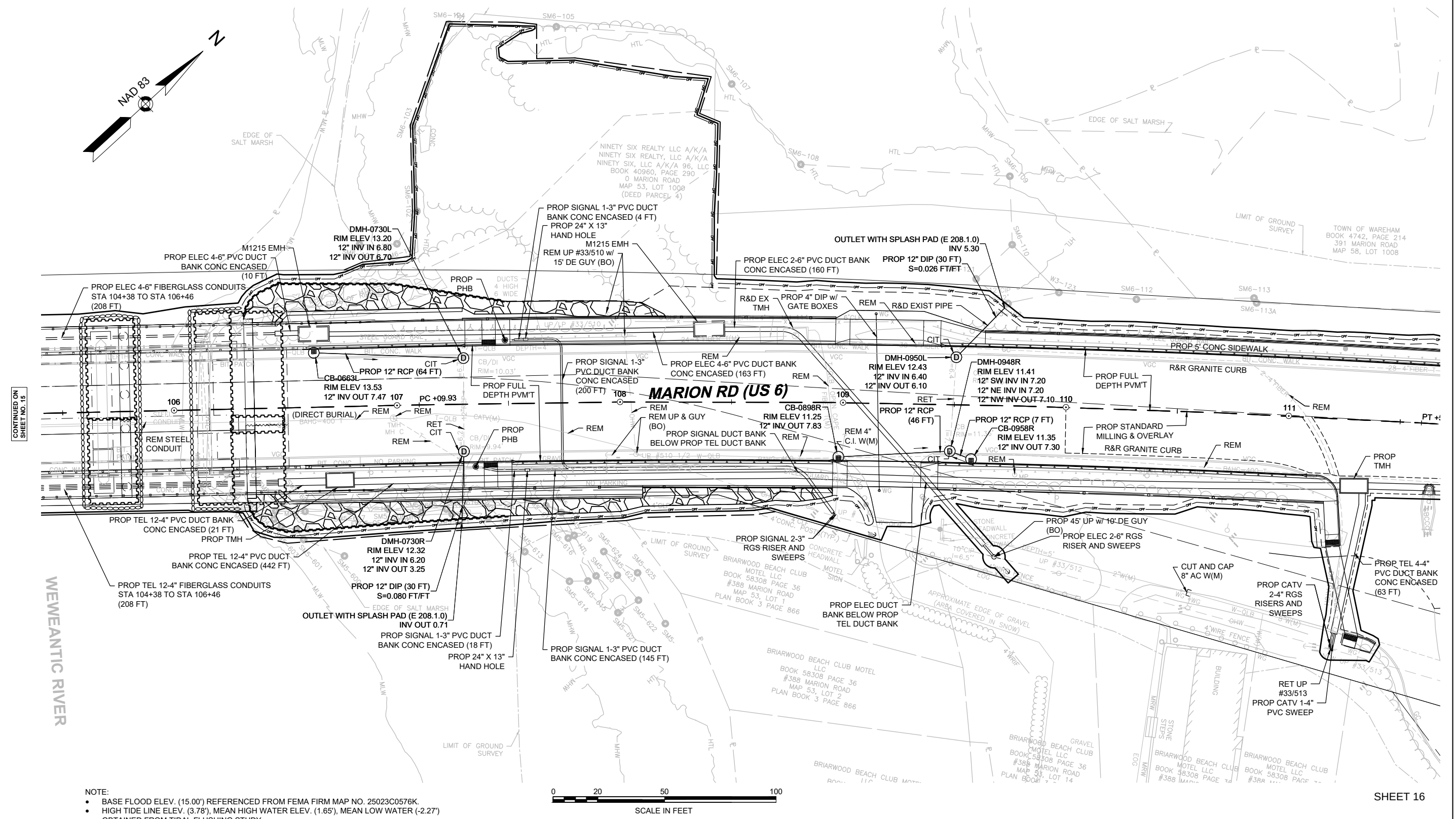
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MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

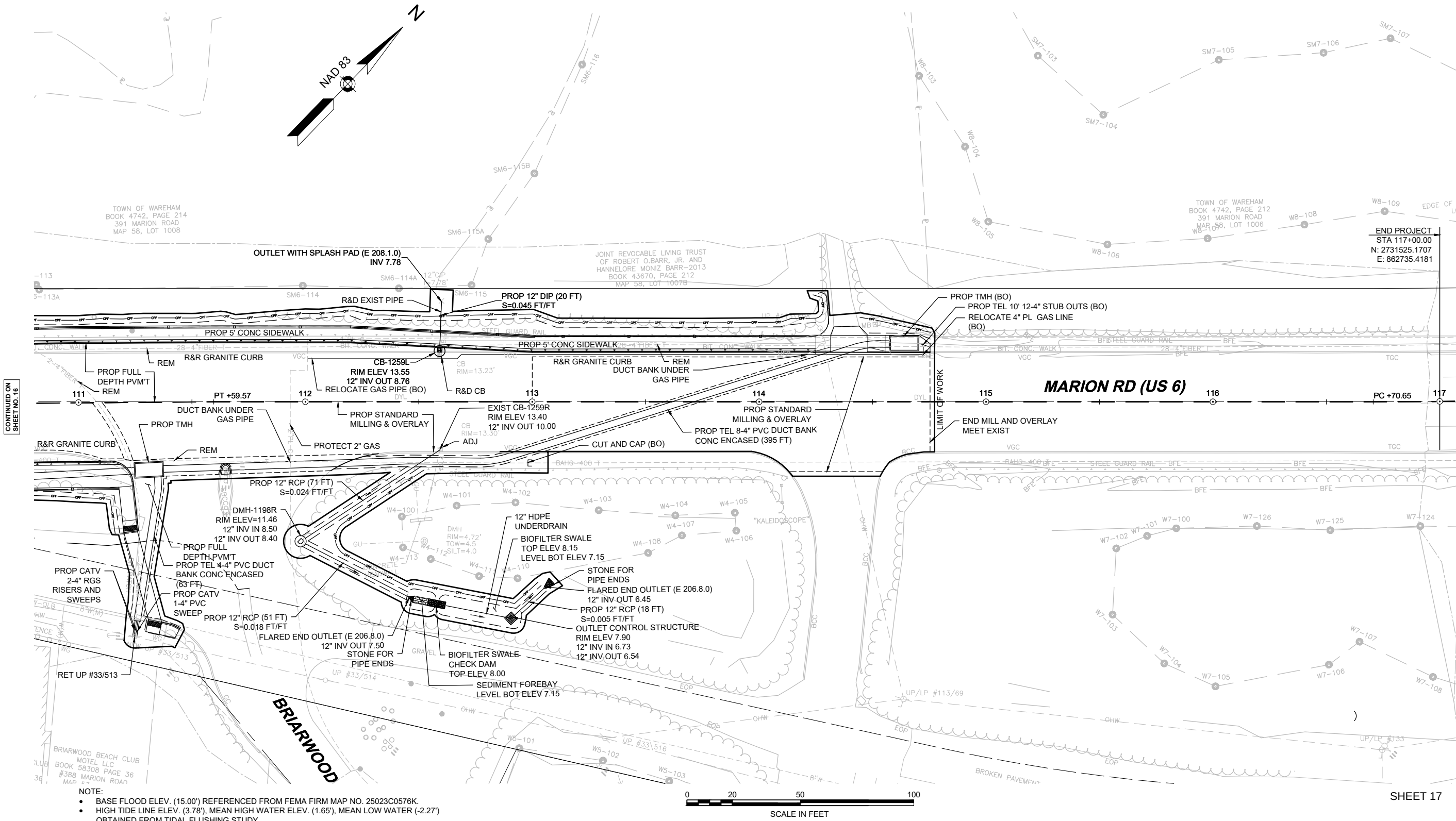
HIGHWAY
DRAINAGE AND UTILITY PLAN SHEET 3 OF 5

- EXISTING SITE NOTES:
1. HTL = 3.78'
 2. MHHW = 2.09'
 3. MHW = 1.65'
 4. LMSL = -0.41'
 5. SALINITY = 5ppt - 25ppt
 6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
 7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



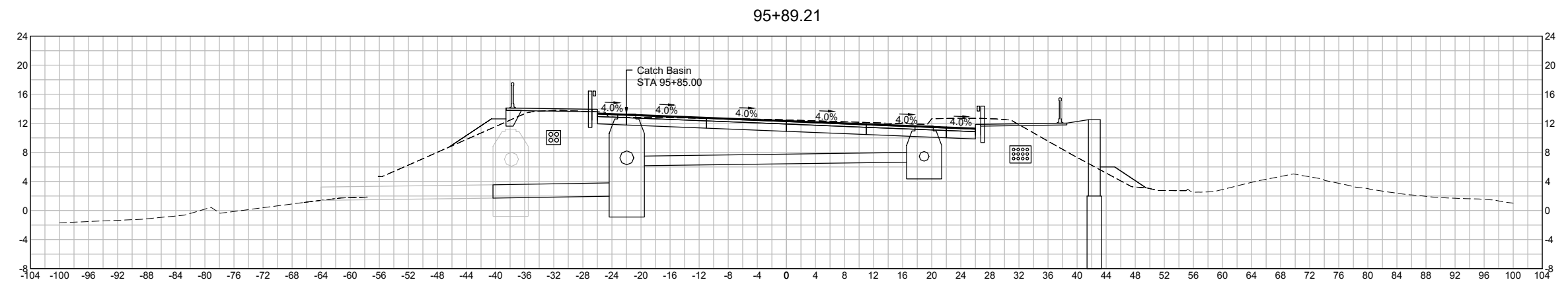
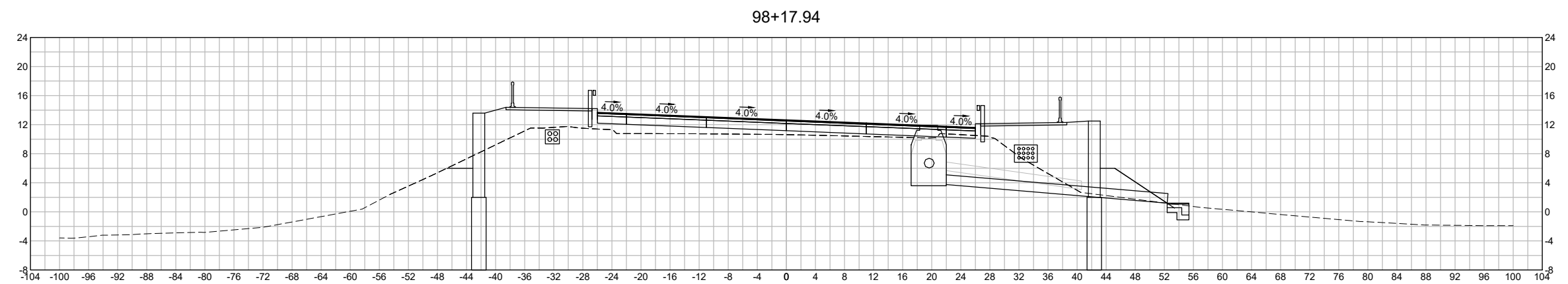
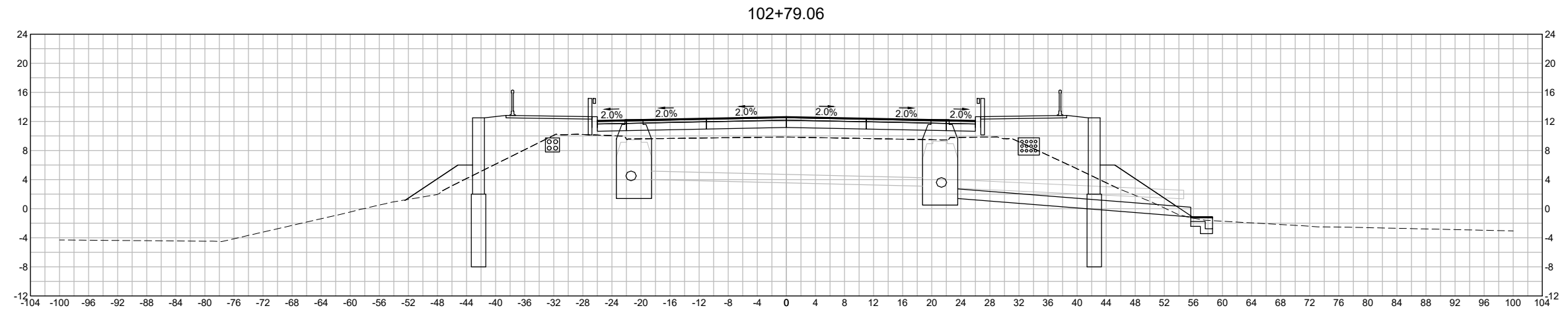
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

- EXISTING SITE NOTES:
1. HTL = 3.78'
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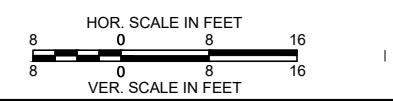
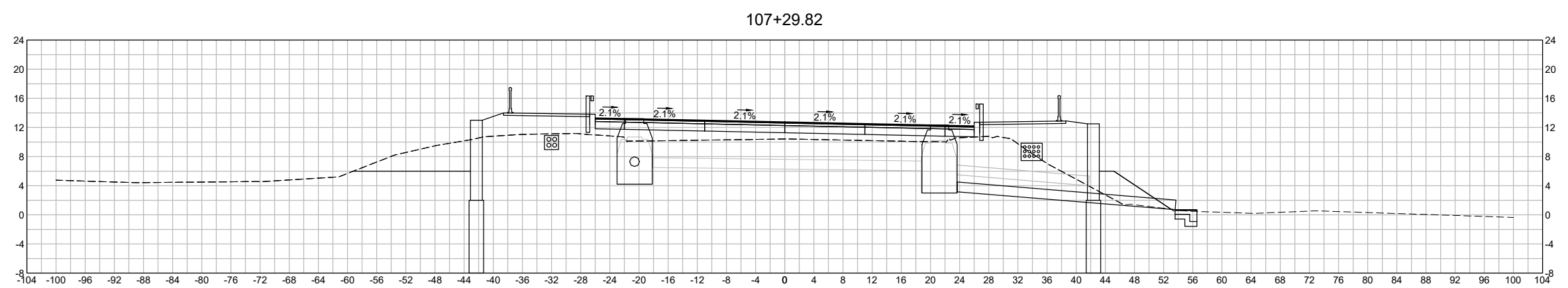
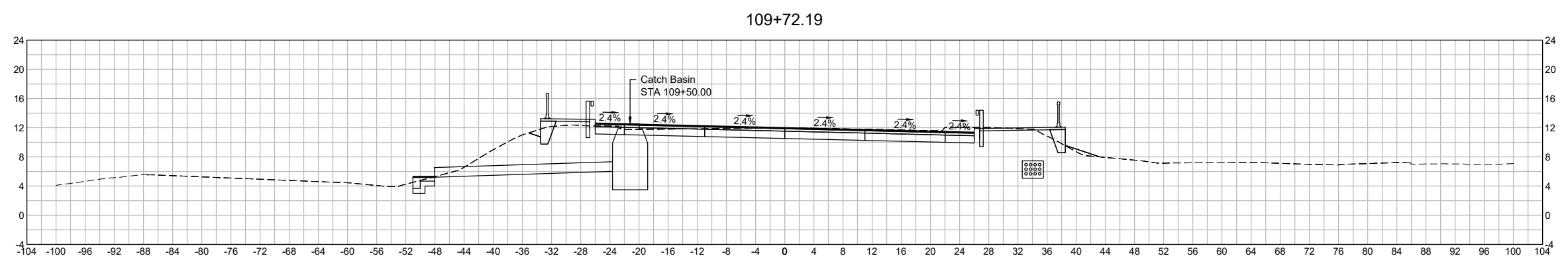
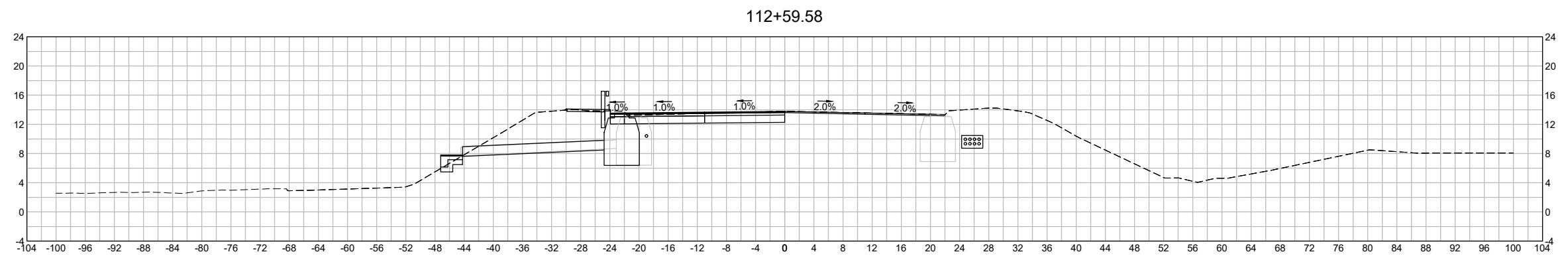
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
DRAINAGE AND UTILITY PLAN SHEET 5 OF 5



HOR. SCALE IN FEET
 8 0 8 16
 8 0 8 16
 VER. SCALE IN FEET

SHEET 18

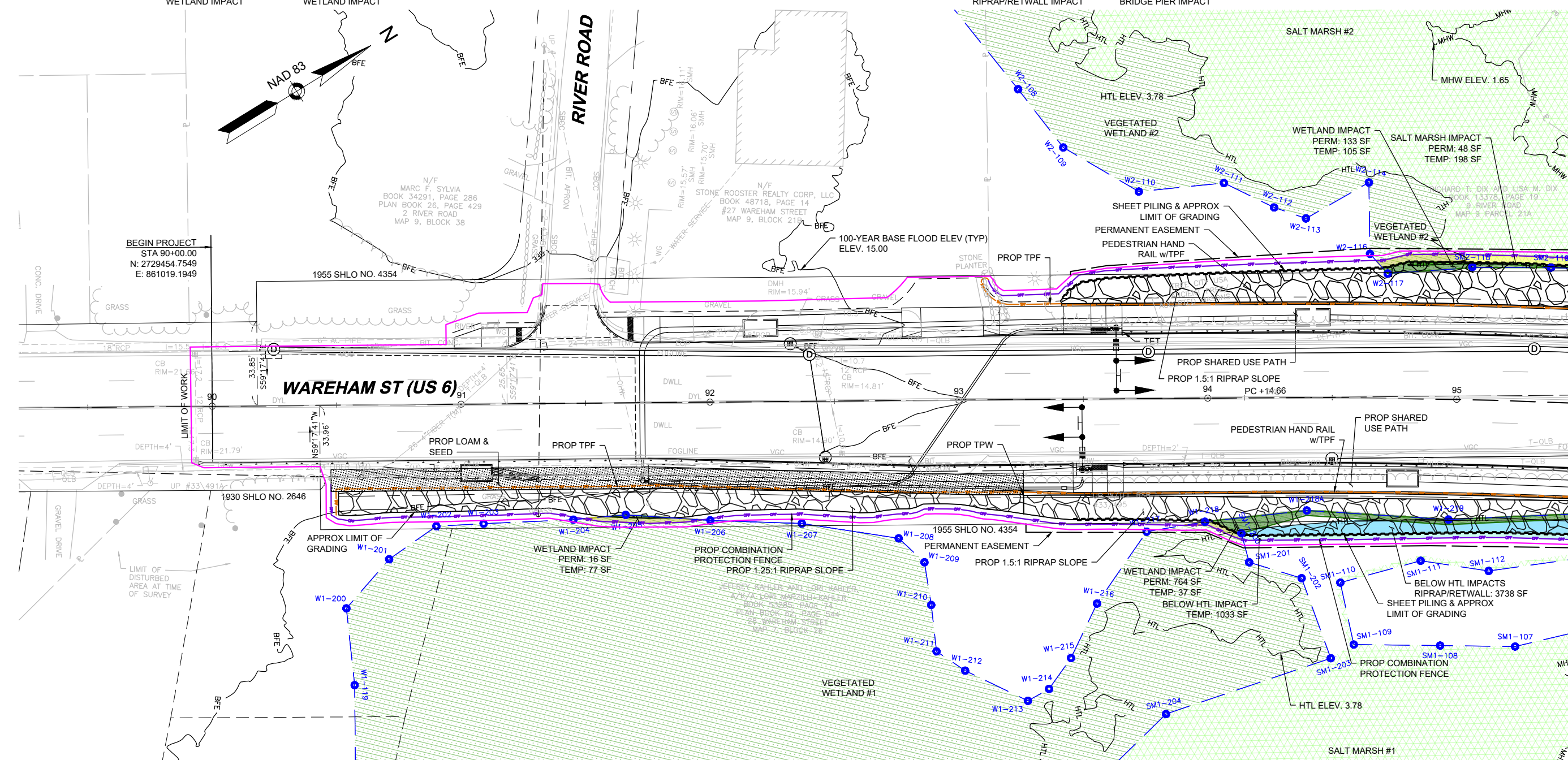


SHEET 19

EXIST. VEGETATED WETLAND	TEMP. VEGETATED WETLAND IMPACT	PERM. VEGETATED WETLAND IMPACT	EXIST. SALT MARSH	TEMP. SALT MARSH IMPACT	PERM. SALT MARSH IMPACT	TEMP. BELOW HTL IMPACT	PERM. BELOW HTL RIPRAP/RET WALL IMPACT	PERM. BELOW HTL BRIDGE PIER IMPACT

1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'

5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



TOTAL PROJECT IMPACT CALCULATIONS (SF.)			
	TEMPORARY	PERMANENT	
		BRIDGE PIER	RIPRAP/RET WALL
VEGETATED WETLAND IMPACTS	219	0	913
SALT MARSH IMPACTS	709	0	1764
BELOW HIGH TIDE LINE IMPACTS	6088	5432	12324

BELOW HIGH TIDE LINE VOLUMETRIC IMPACT CALCULATIONS (CY.)			
	M-05-001=W-06-013	W-06-016	RIP RAP, CRUSHED STONE, LIGHTWEIGHT FILL
DREDGING	173	330	3260
FILL	173	330	3890

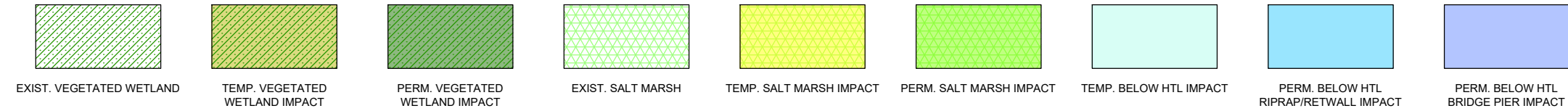
NOTE:

- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

SHEET 20

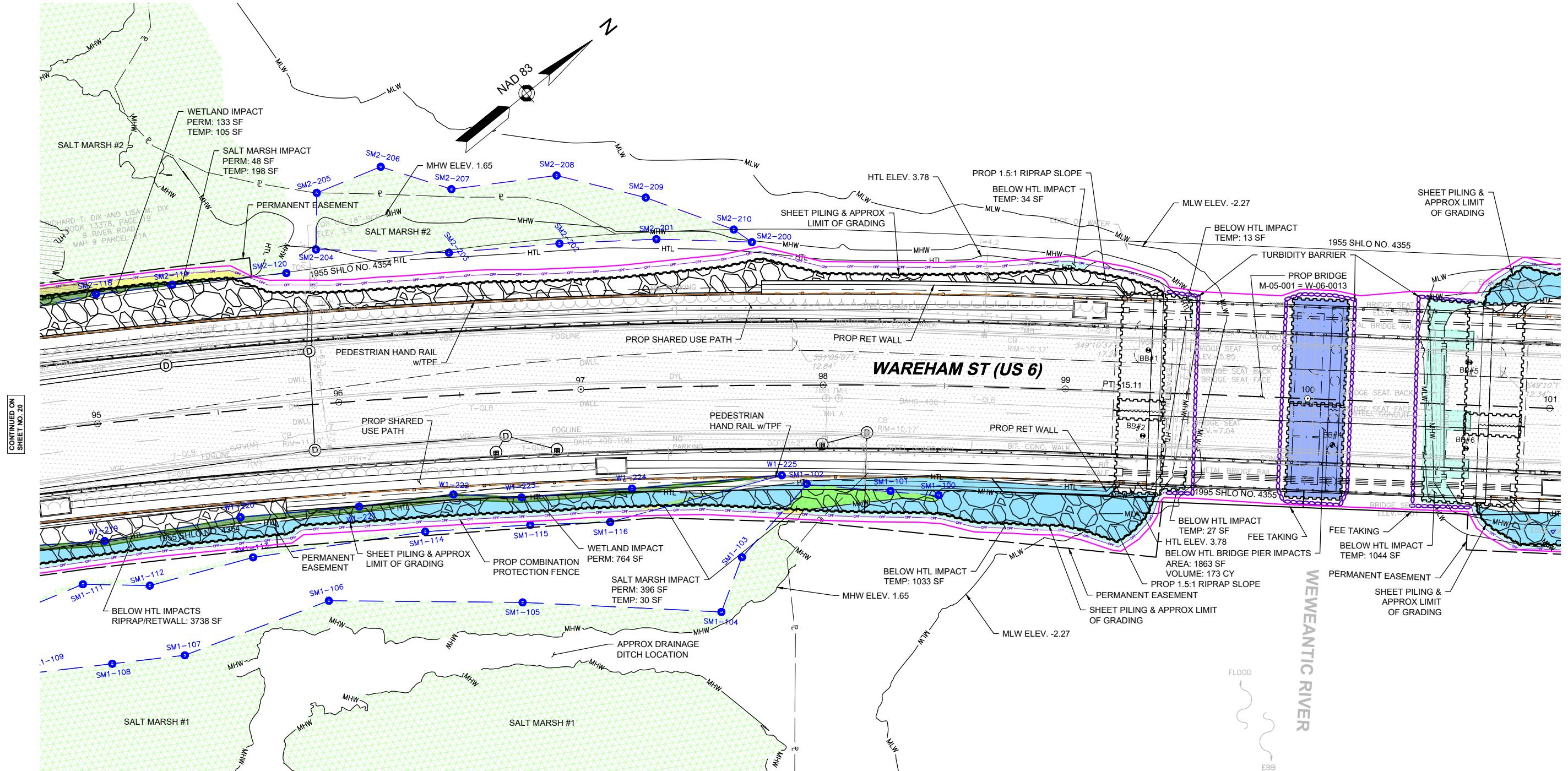
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IMPACT SYMBOLOGY LEGEND



EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'

5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY

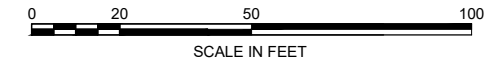


TOTAL PROJECT IMPACT CALCULATIONS (SF.)

	TEMPORARY	PERMANENT	
		BRIDGE PIER	RIPRAP/RETWALL
VEGETATED WETLAND IMPACTS	219	0	913
SALT MARSH IMPACTS	709	0	1764
BELOW HIGH TIDE LINE IMPACTS	6088	5432	12324

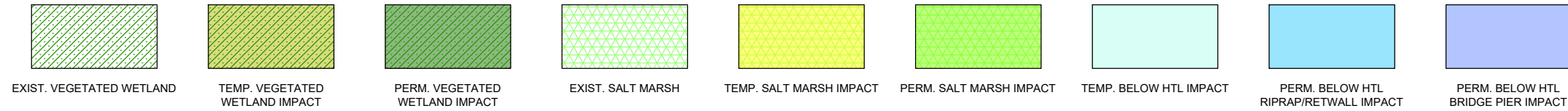
BELOW HIGH TIDE LINE VOLUMETRIC IMPACT CALCULATIONS (CY.)

	M-05-001=W-06-013	W-06-016	RIP RAP, CRUSHED STONE, LIGHTWEIGHT FILL
DREDGING	173	330	3260
FILL	173	330	3890



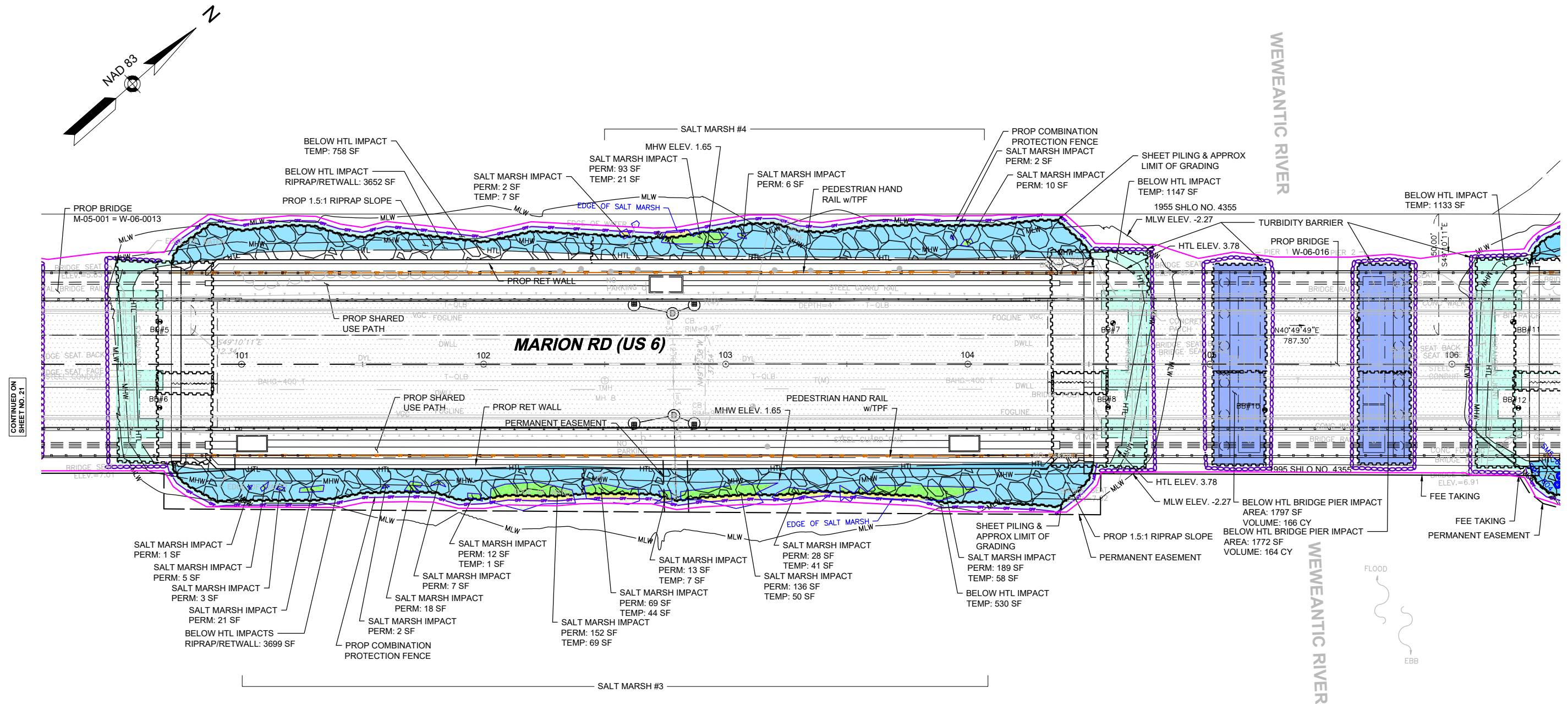
NOTE:
• BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
• HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.
• SEE SHEET 37 FOR M-05-001=W-06-013 EXIST BRIDGE ABUTMENT REMOVAL ELEVATIONS.

IMPACT SYMBOLOGY LEGEND



EXISTING SITE NOTES:
 1. HTL = 3.78'
 2. MHHW = 2.09'
 3. MHW = 1.65'
 4. LMSL = -0.41'

5. SALINITY = 5ppt - 25ppt
 6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
 7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY

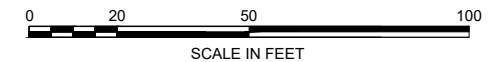


CONTINUED ON SHEET NO. 21

CONTINUED ON SHEET NO. 23

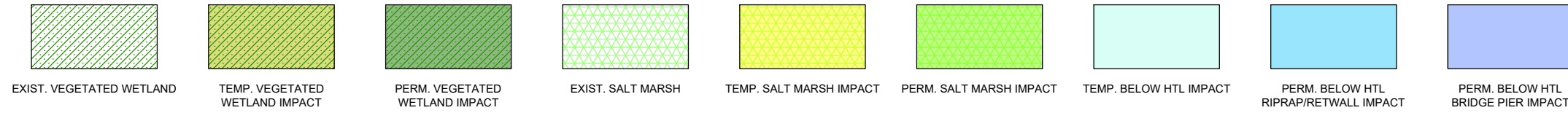
TOTAL PROJECT IMPACT CALCULATIONS (SF.)			
	TEMPORARY	PERMANENT	
		BRIDGE PIER	RIPRAP/RETWALL
VEGETATED WETLAND IMPACTS	219	0	913
SALT MARSH IMPACTS	709	0	1764
BELOW HIGH TIDE LINE IMPACTS	6088	5432	12324

BELOW HIGH TIDE LINE VOLUMETRIC IMPACT CALCULATIONS (CY.)			
	M-05-001=W-06-013	W-06-016	RIP RAP, CRUSHED STONE, LIGHTWEIGHT FILL
DREDGING	173	330	3260
FILL	173	330	3890



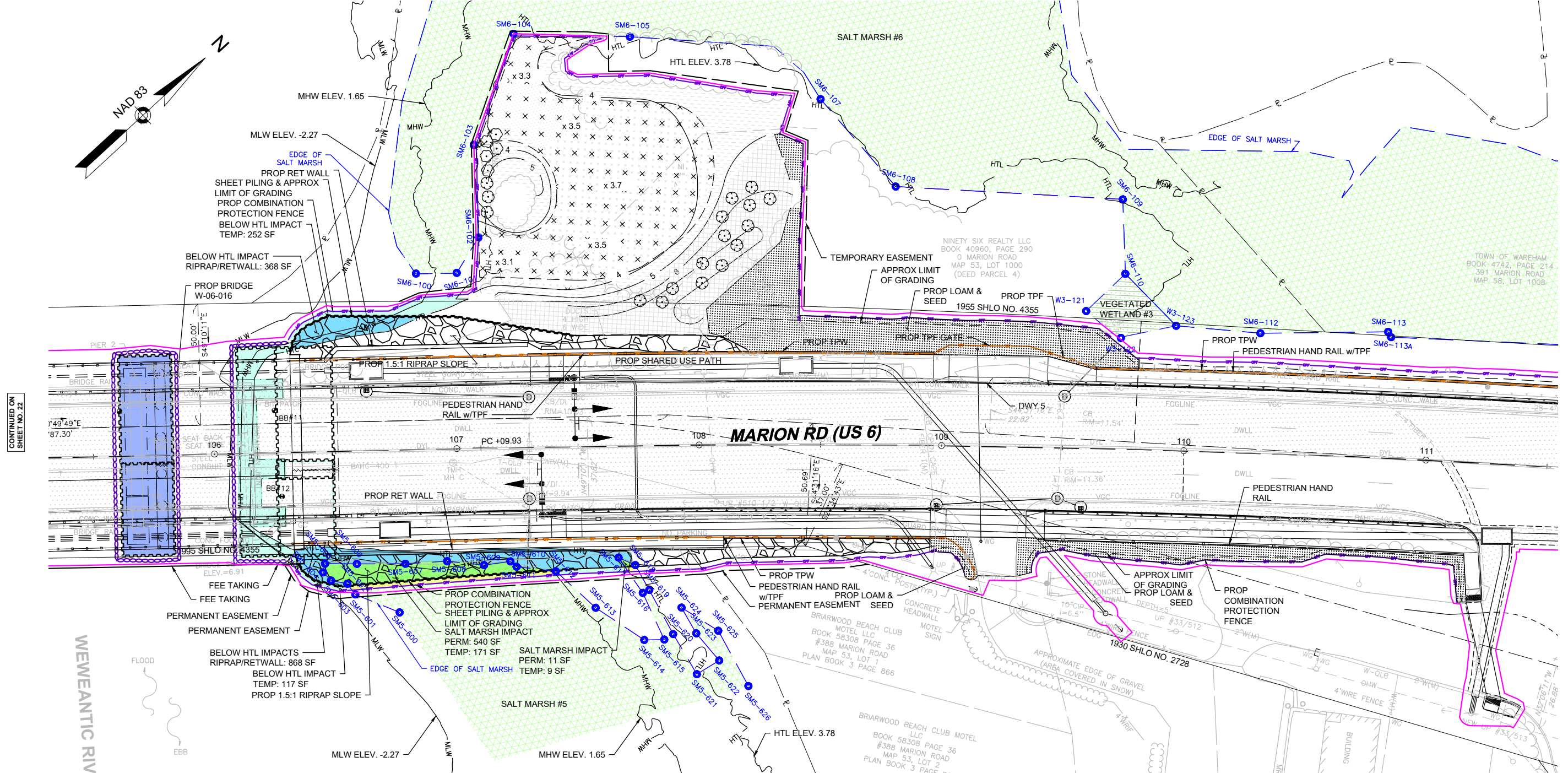
NOTE:
 • BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
 • HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER ELEV. (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.
 • SEE SHEET 43 FOR W-06-016 EXIST BRIDGE ABUTMENT REMOVAL ELEVATIONS.

IMPACT SYMBOLOGY LEGEND



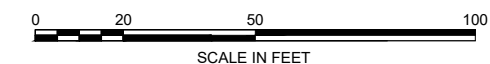
EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'

5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



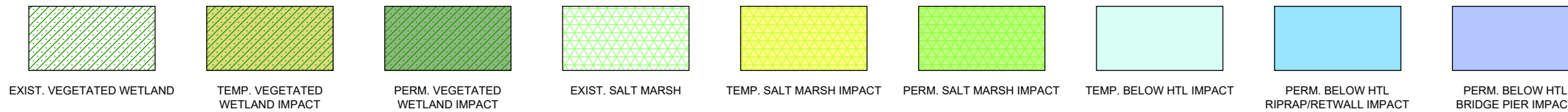
TOTAL PROJECT IMPACT CALCULATIONS (SF.)			
	TEMPORARY	PERMANENT	
		BRIDGE PIER	RIPRAP/RETWALL
VEGETATED WETLAND IMPACTS	219	0	913
SALT MARSH IMPACTS	709	0	1764
BELOW HIGH TIDE LINE IMPACTS	6088	5432	12324

BELOW HIGH TIDE LINE VOLUMETRIC IMPACT CALCULATIONS (CY.)			
	M-05-001=W-06-013		RIP RAP, CRUSHED STONE, LIGHTWEIGHT FILL
	W-06-016		
DREDGING	173	330	3260
FILL	173	330	3890



NOTE:
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• HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

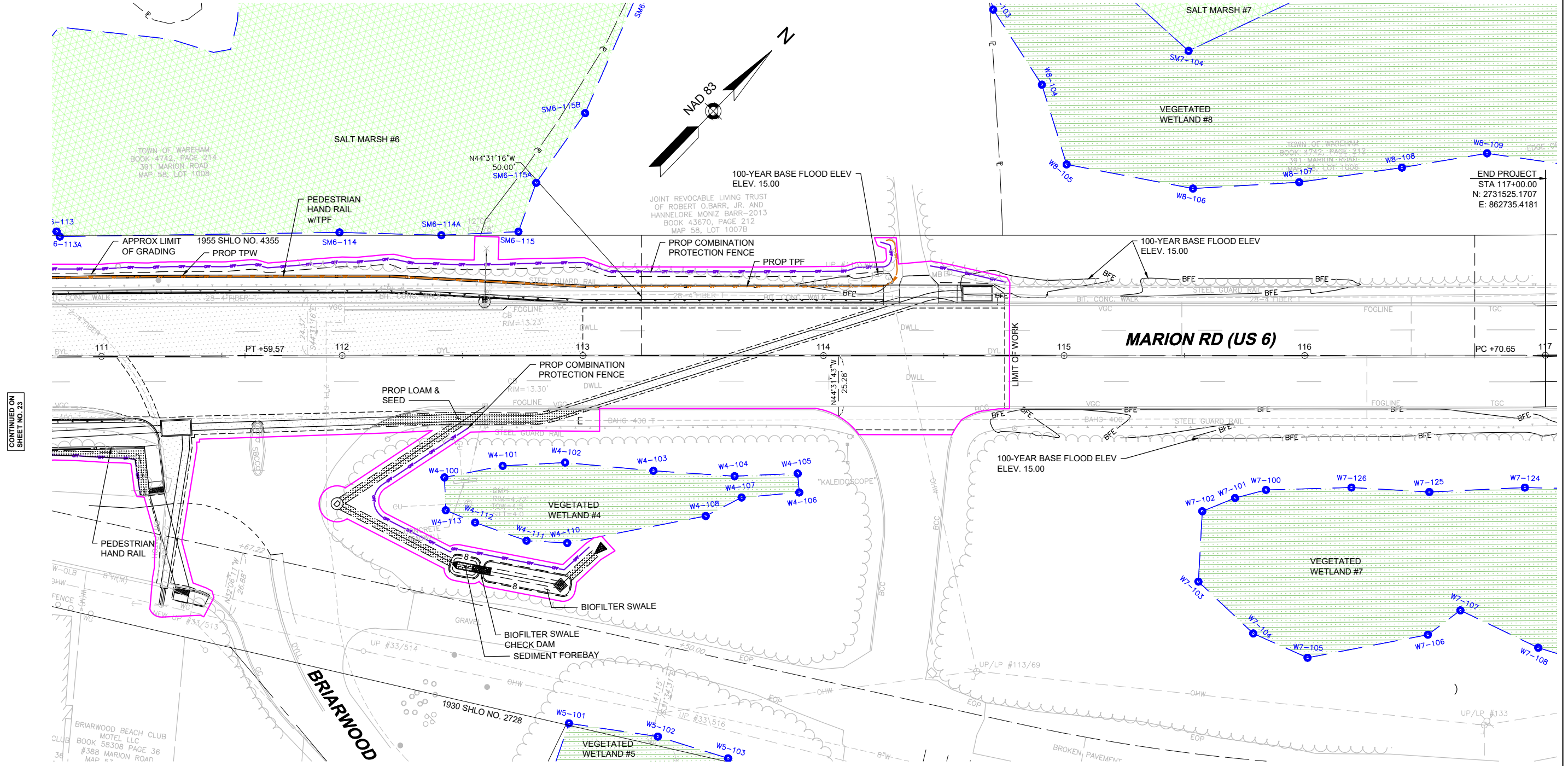
IMPACT SYMBOLOGY LEGEND



EXISTING SITE NOTES:

1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'

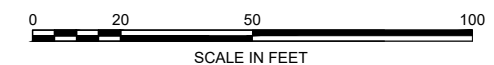
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



CONTINUED ON
SHEET NO. 23

TOTAL PROJECT IMPACT CALCULATIONS (SF.)			
	TEMPORARY	PERMANENT	
		BRIDGE PIER	RIPRAP/RETWALL
VEGETATED WETLAND IMPACTS	219	0	913
SALT MARSH IMPACTS	709	0	1764
BELOW HIGH TIDE LINE IMPACTS	6088	5432	12324

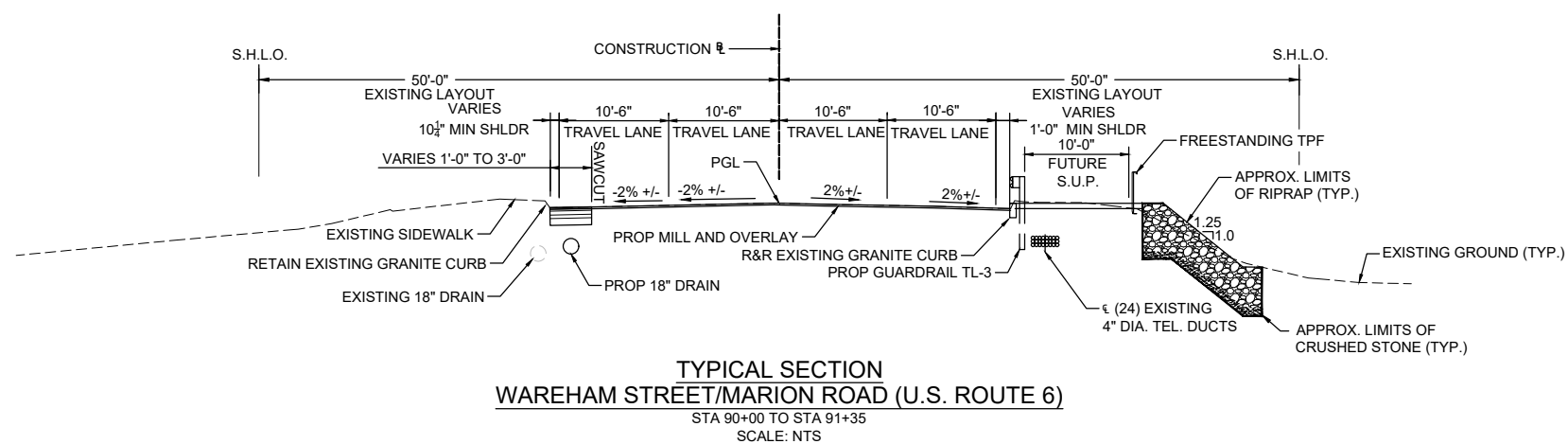
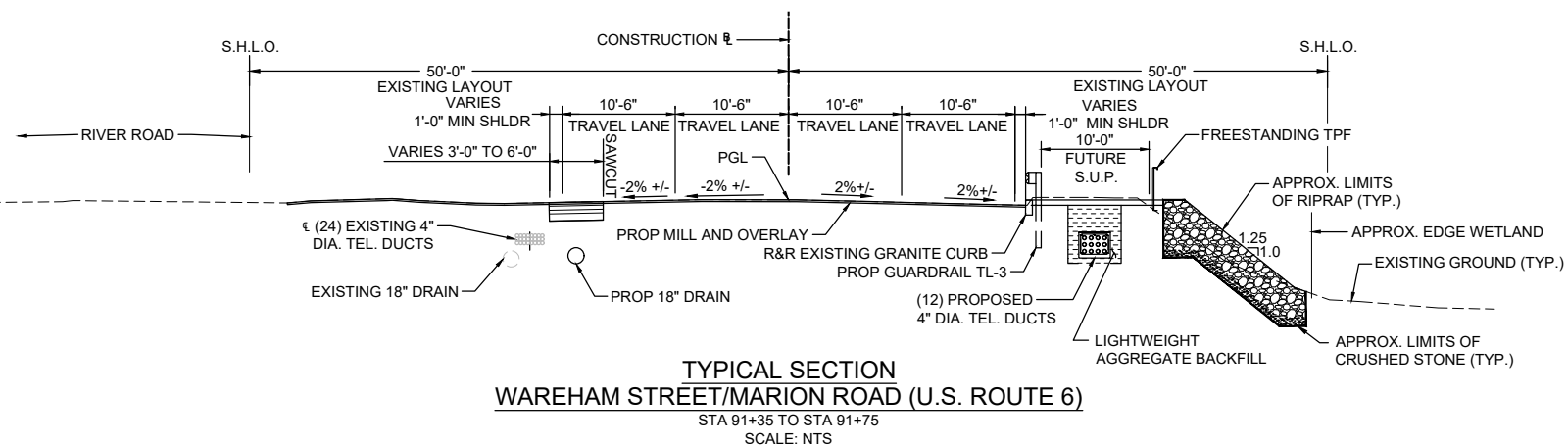
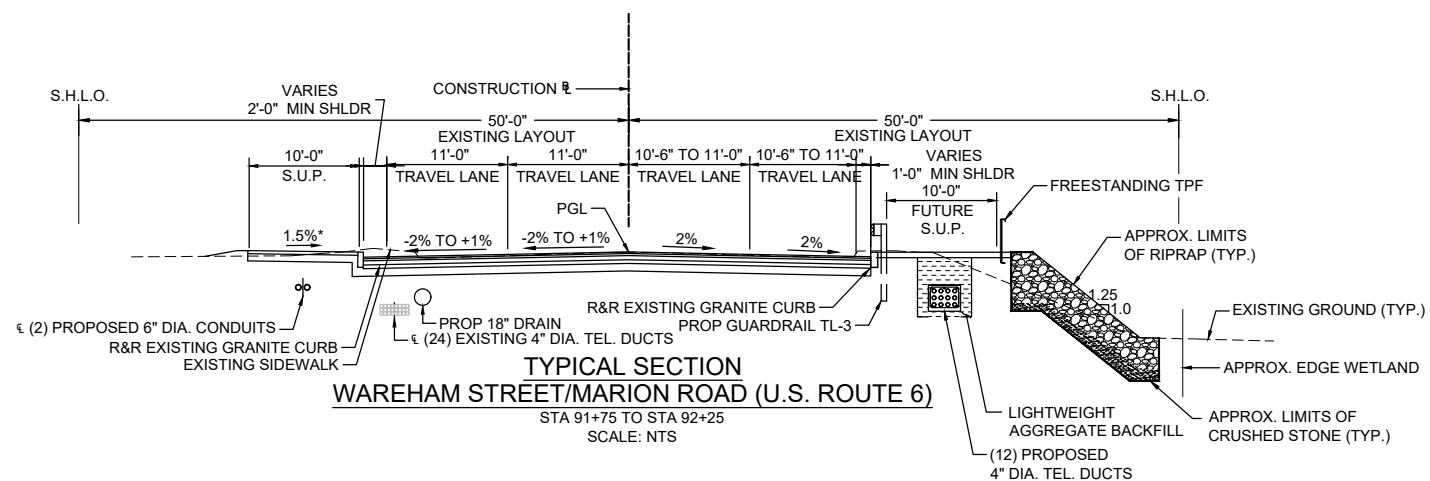
BELOW HIGH TIDE LINE VOLUMETRIC IMPACT CALCULATIONS (CY.)			
	M-05-001=W-06-013	W-06-016	RIPRAP/RETWALL
DREDGING	173	330	3260
FILL	173	330	3890

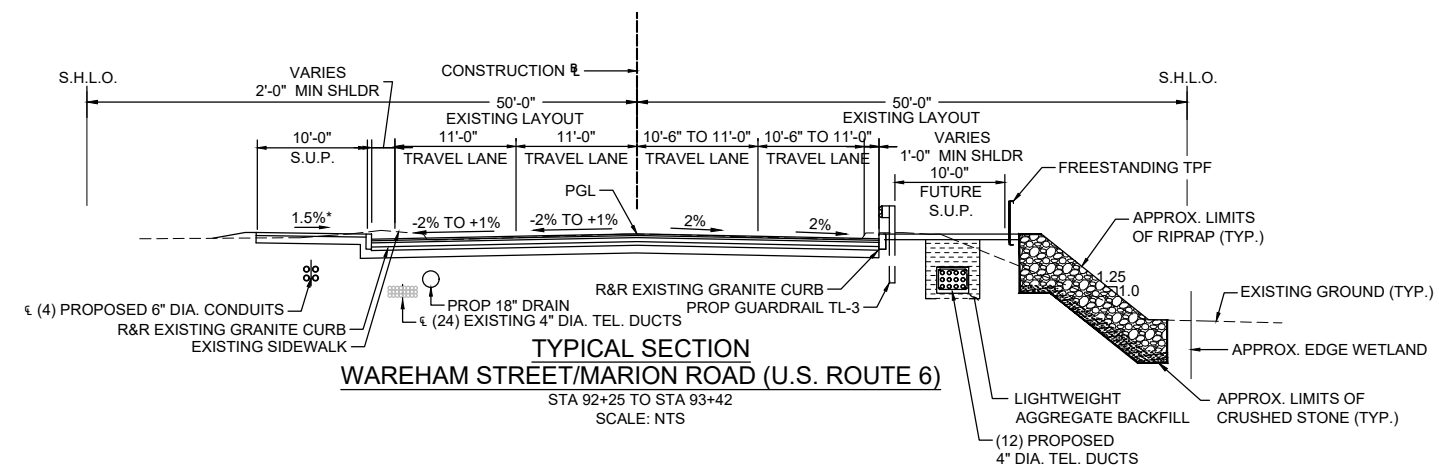
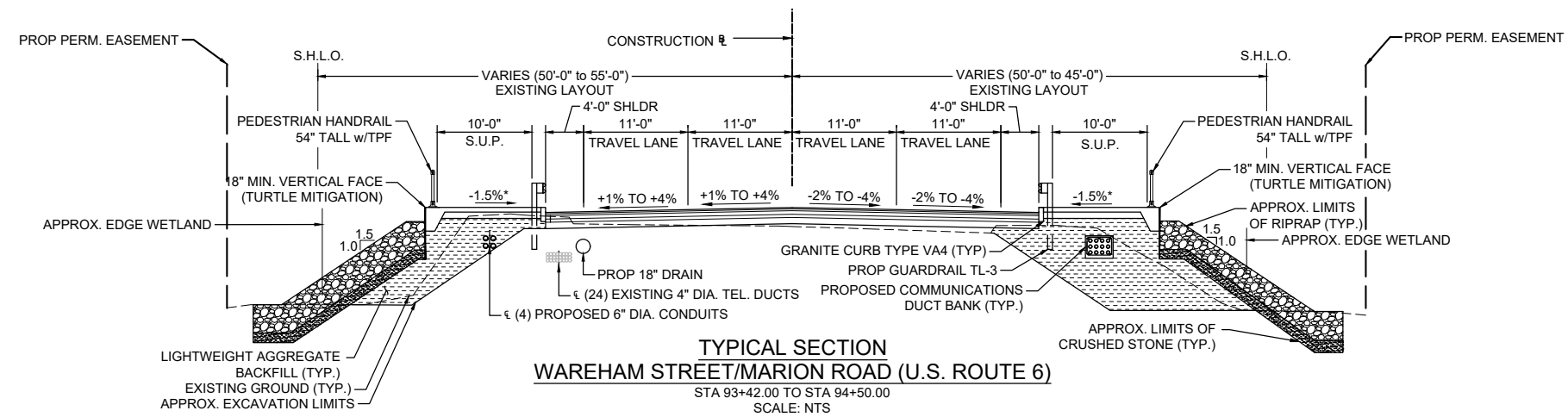
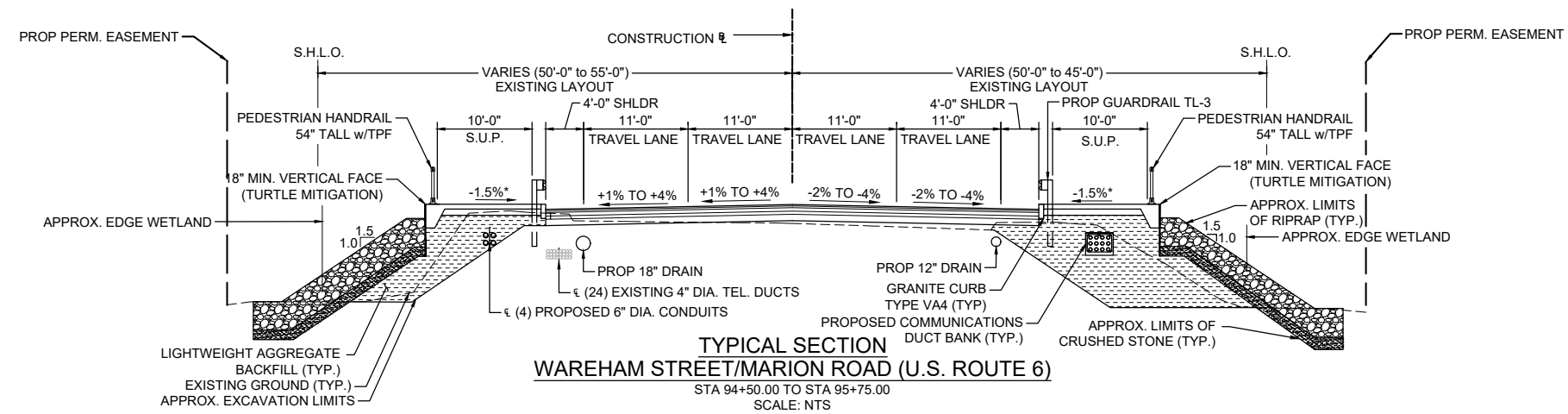


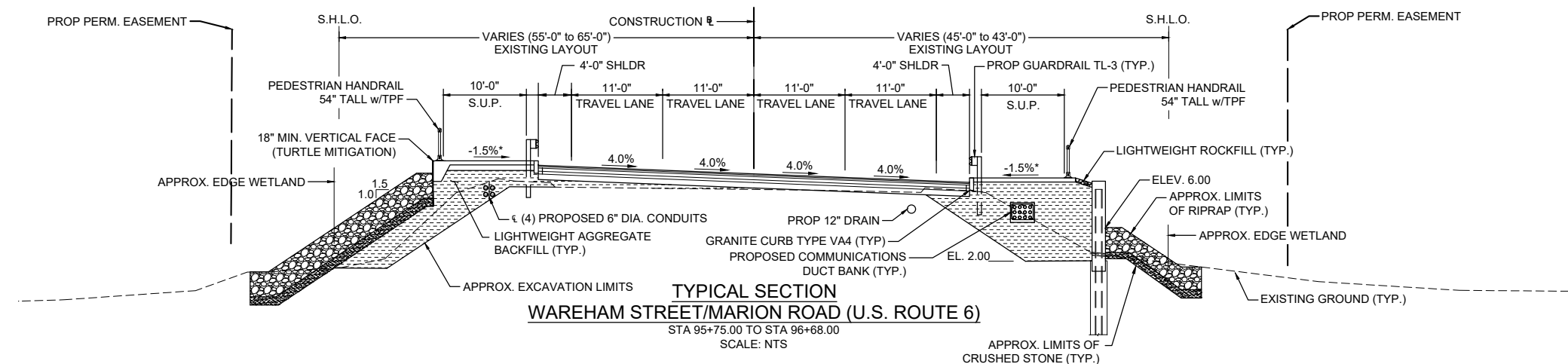
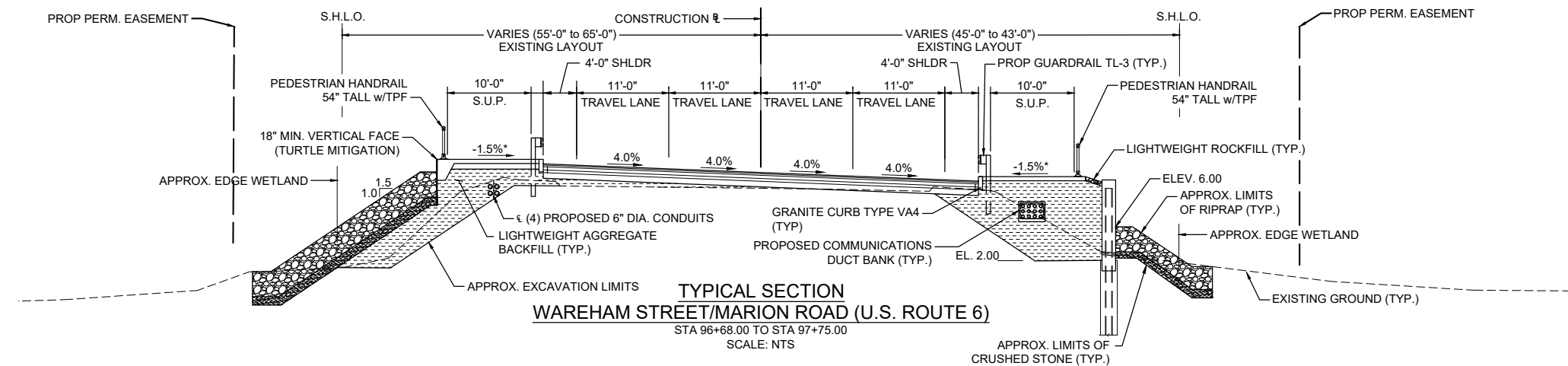
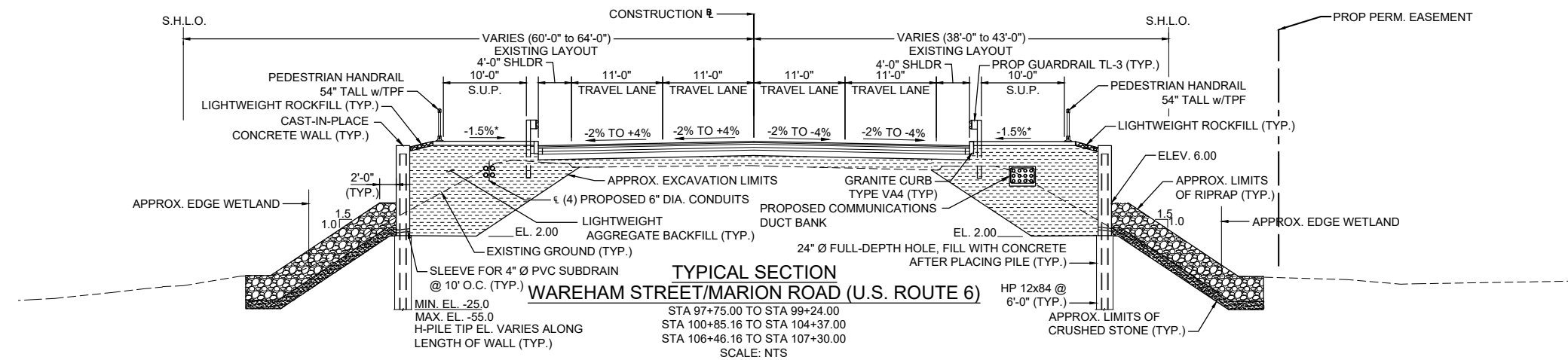
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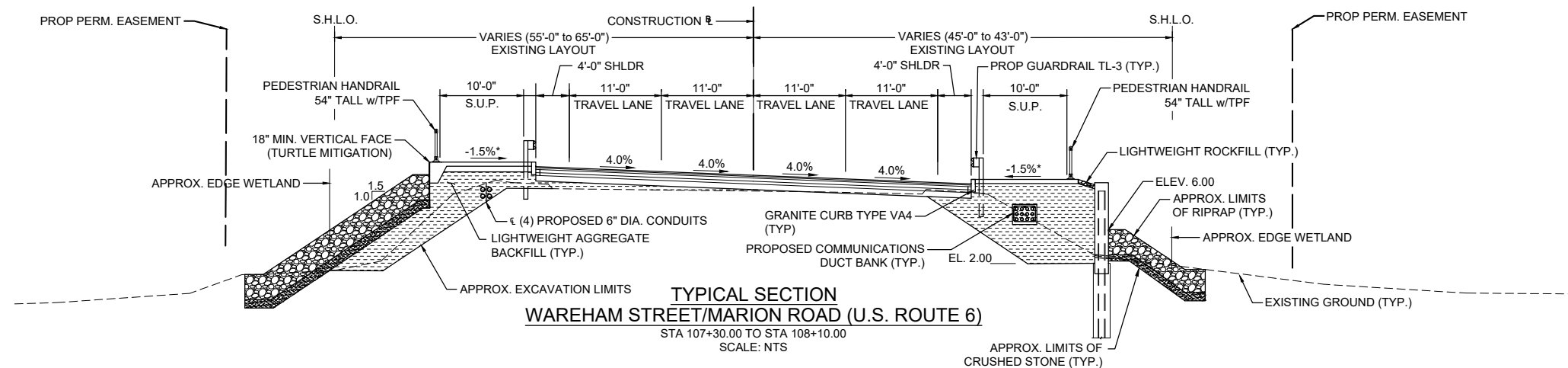
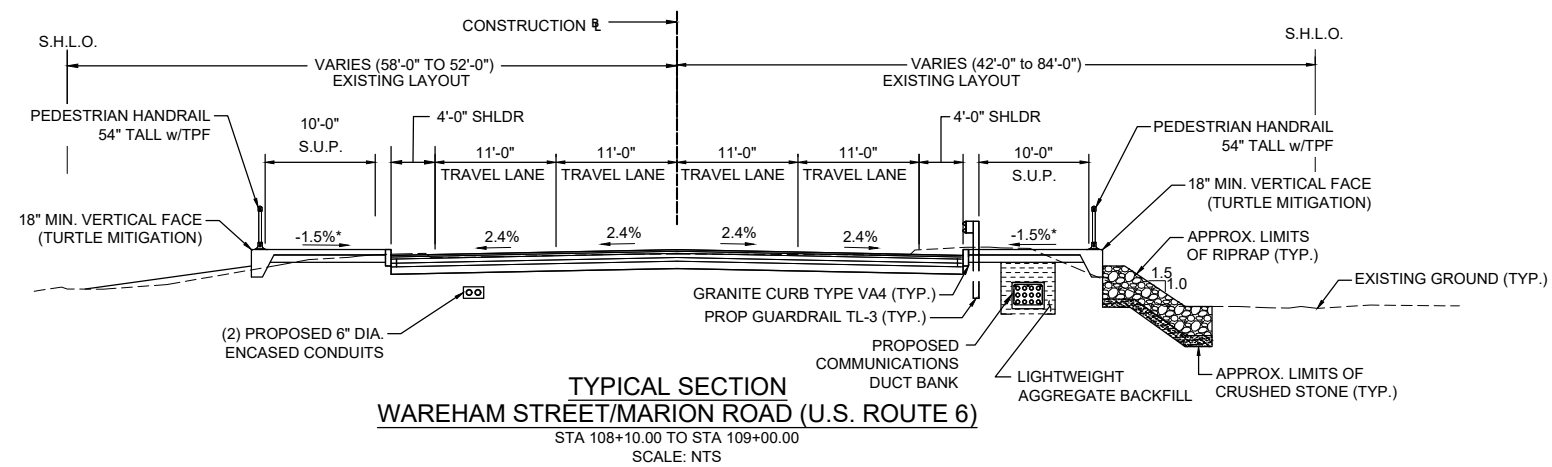
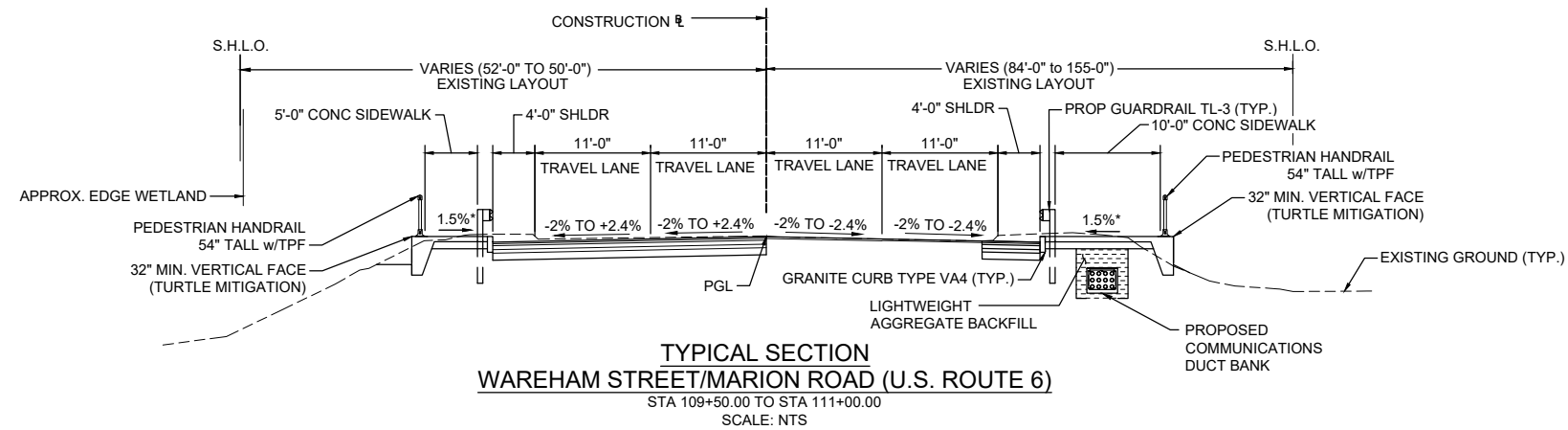
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

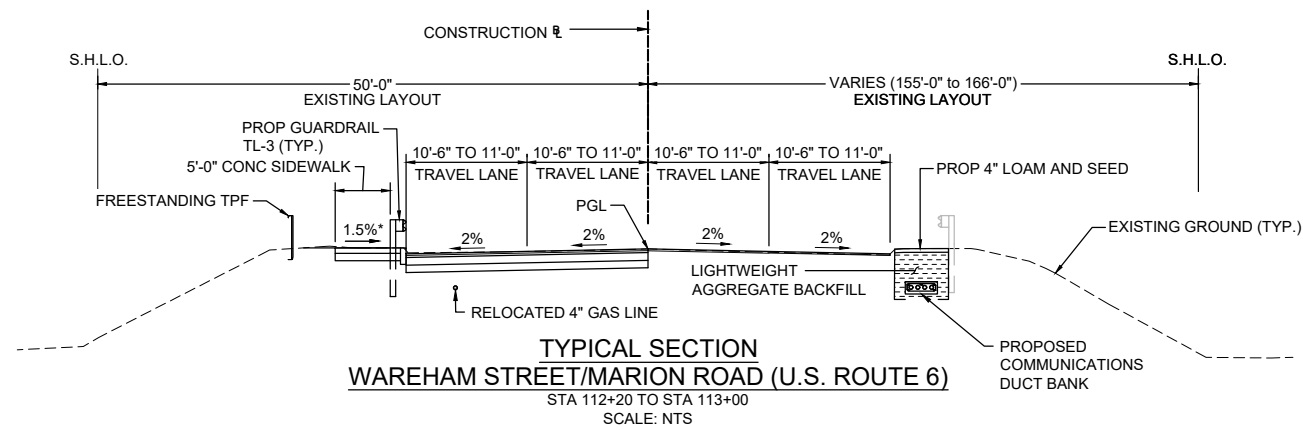
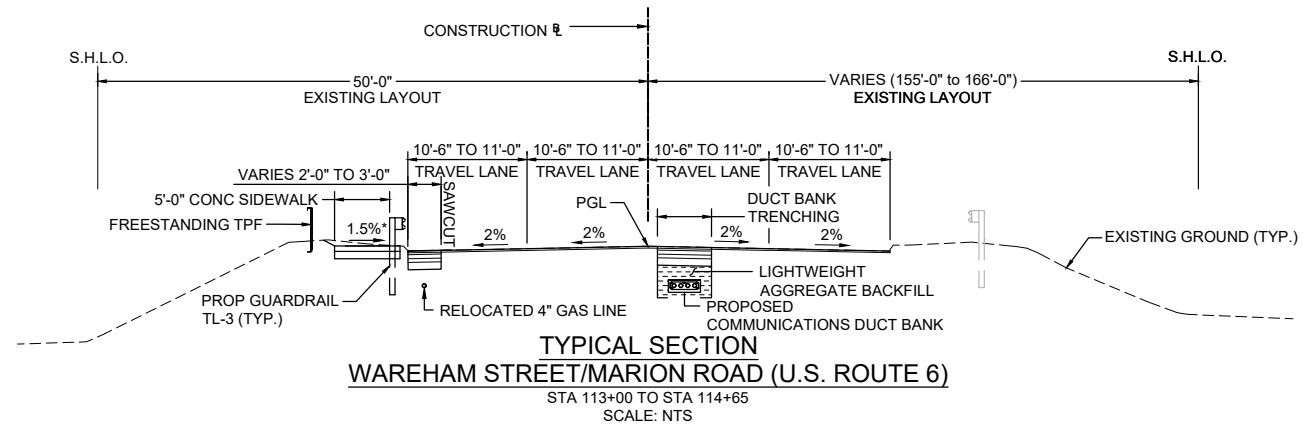
SHEET 24

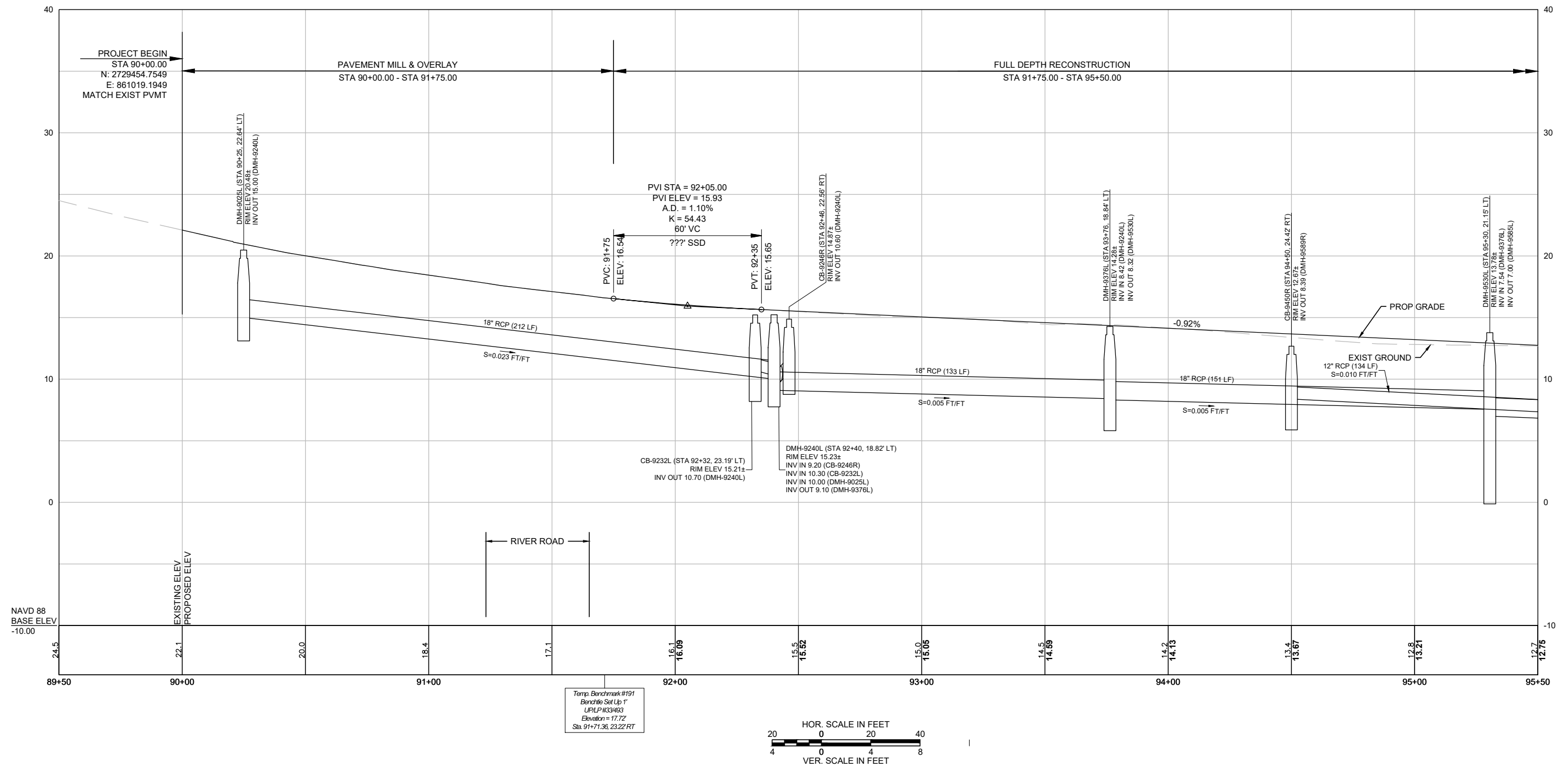












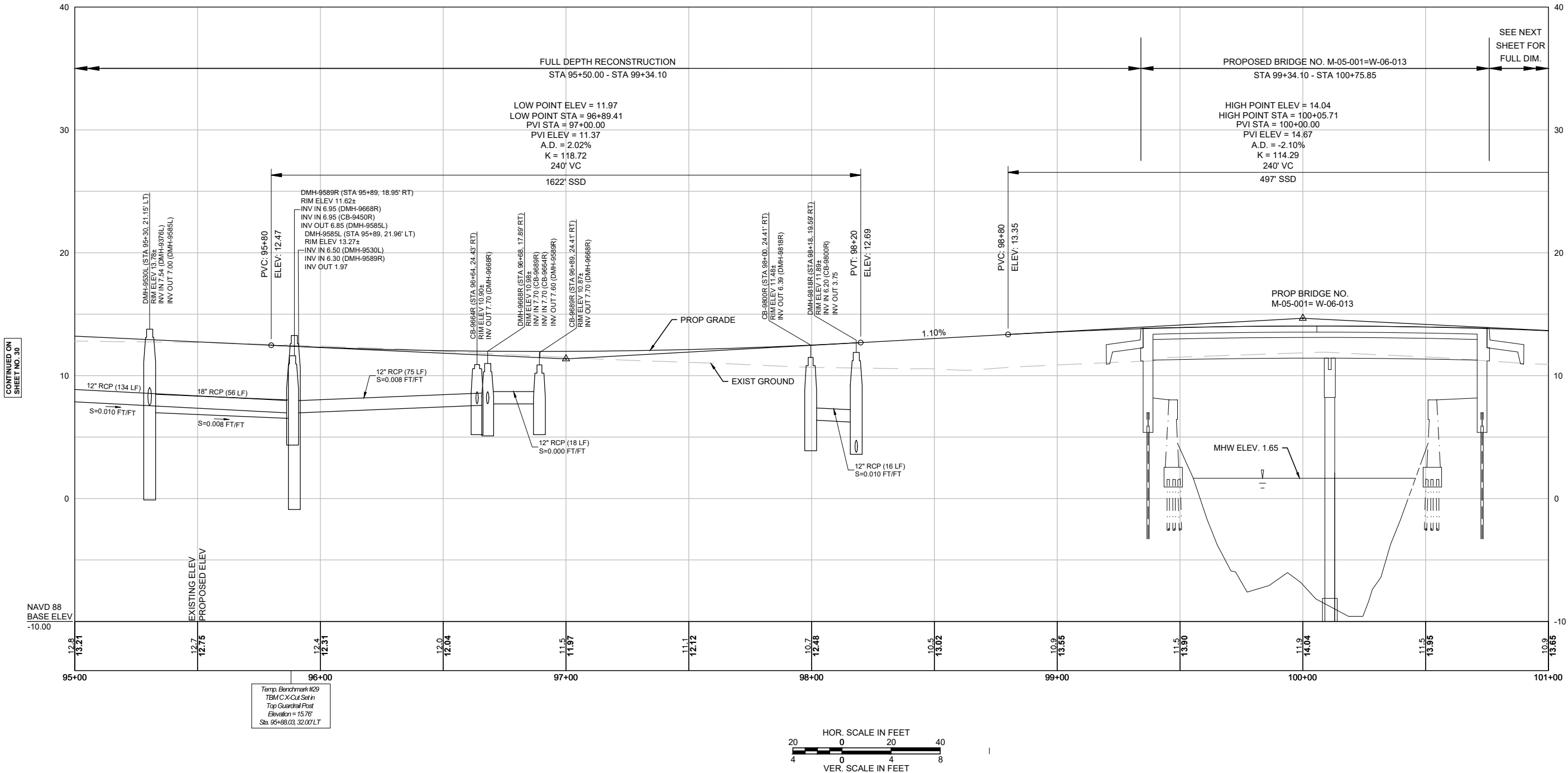
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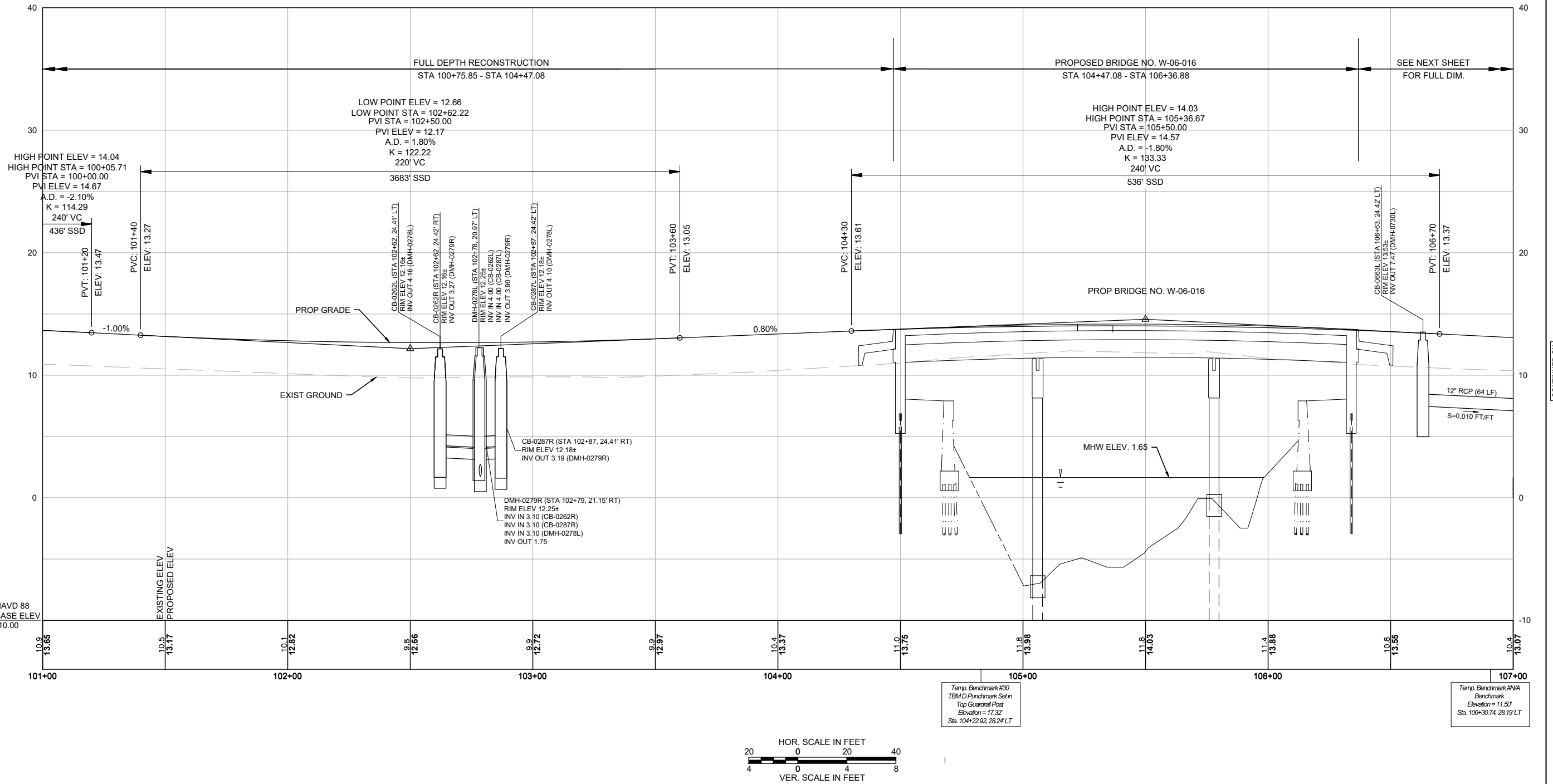
SHEET 30



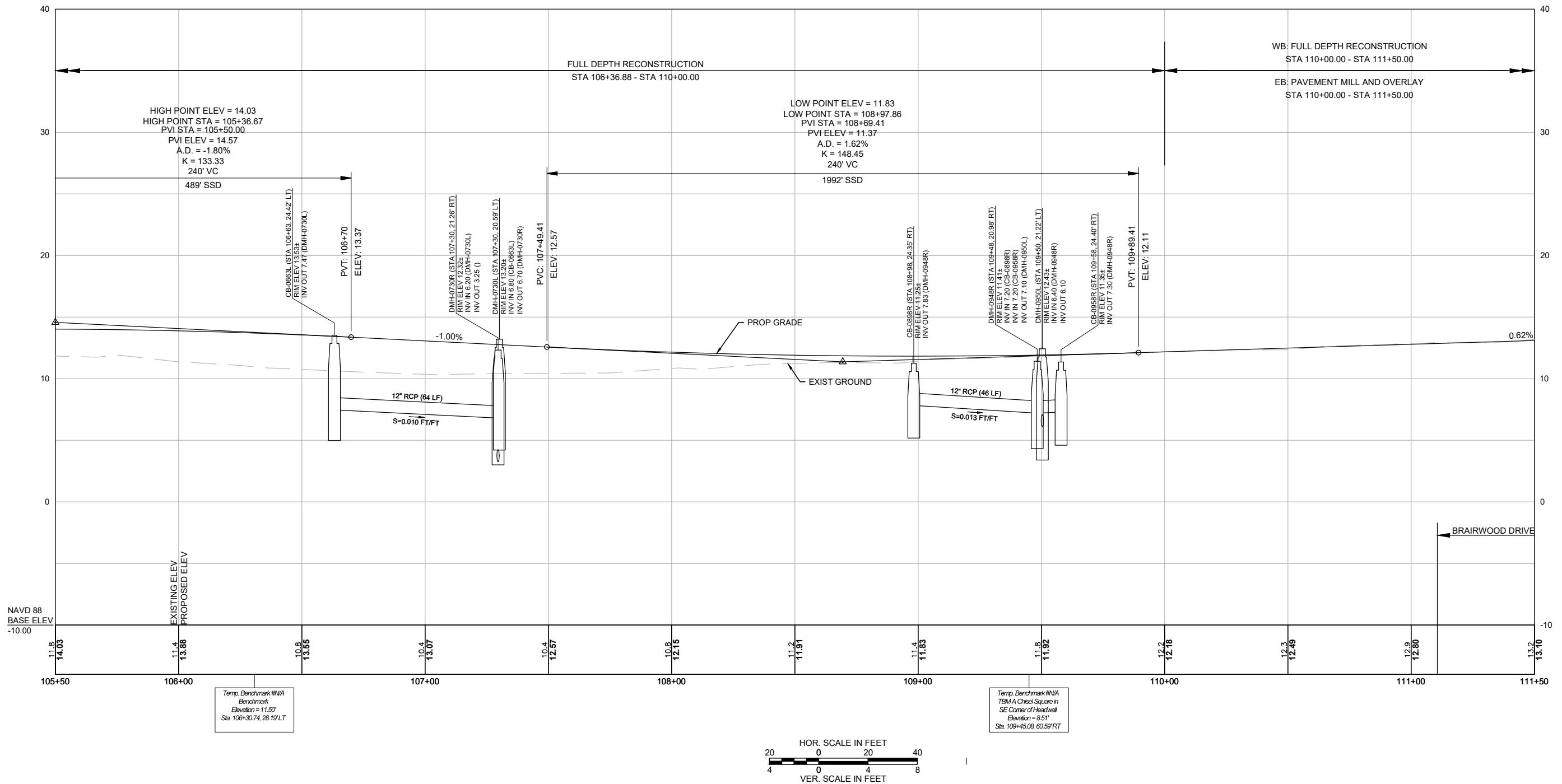
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
PROFILE SHEET 1 OF 5





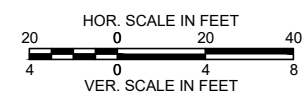
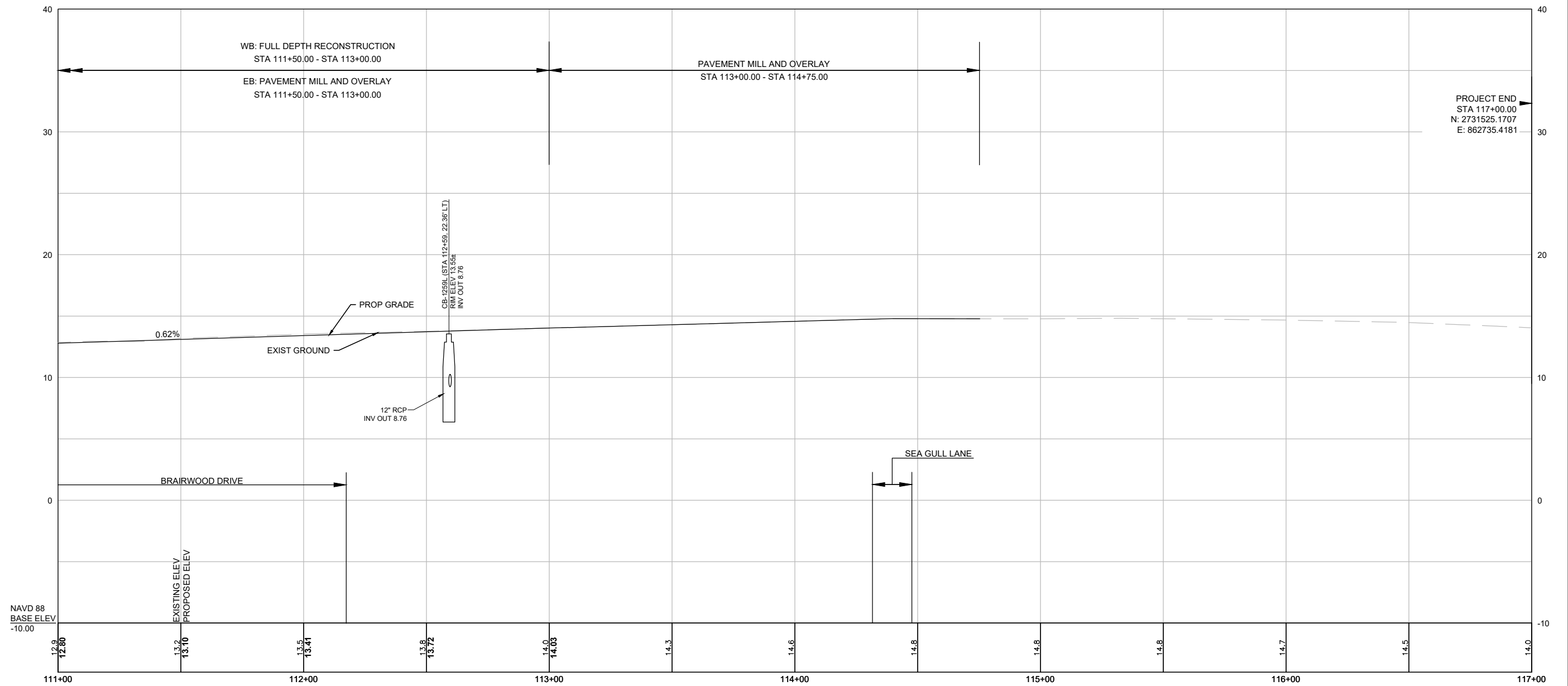
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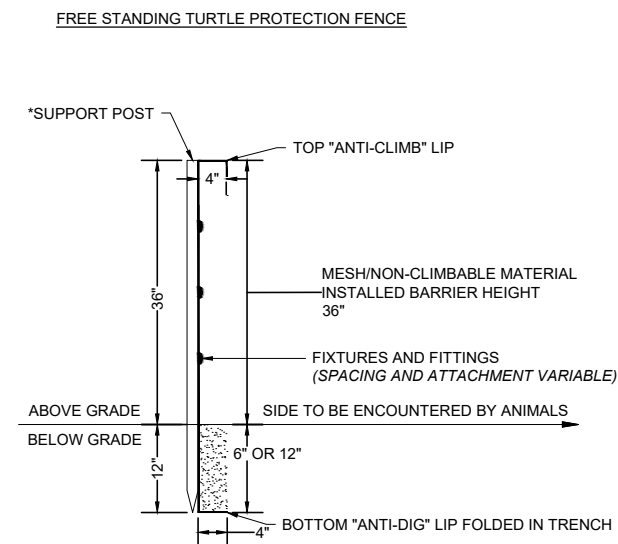
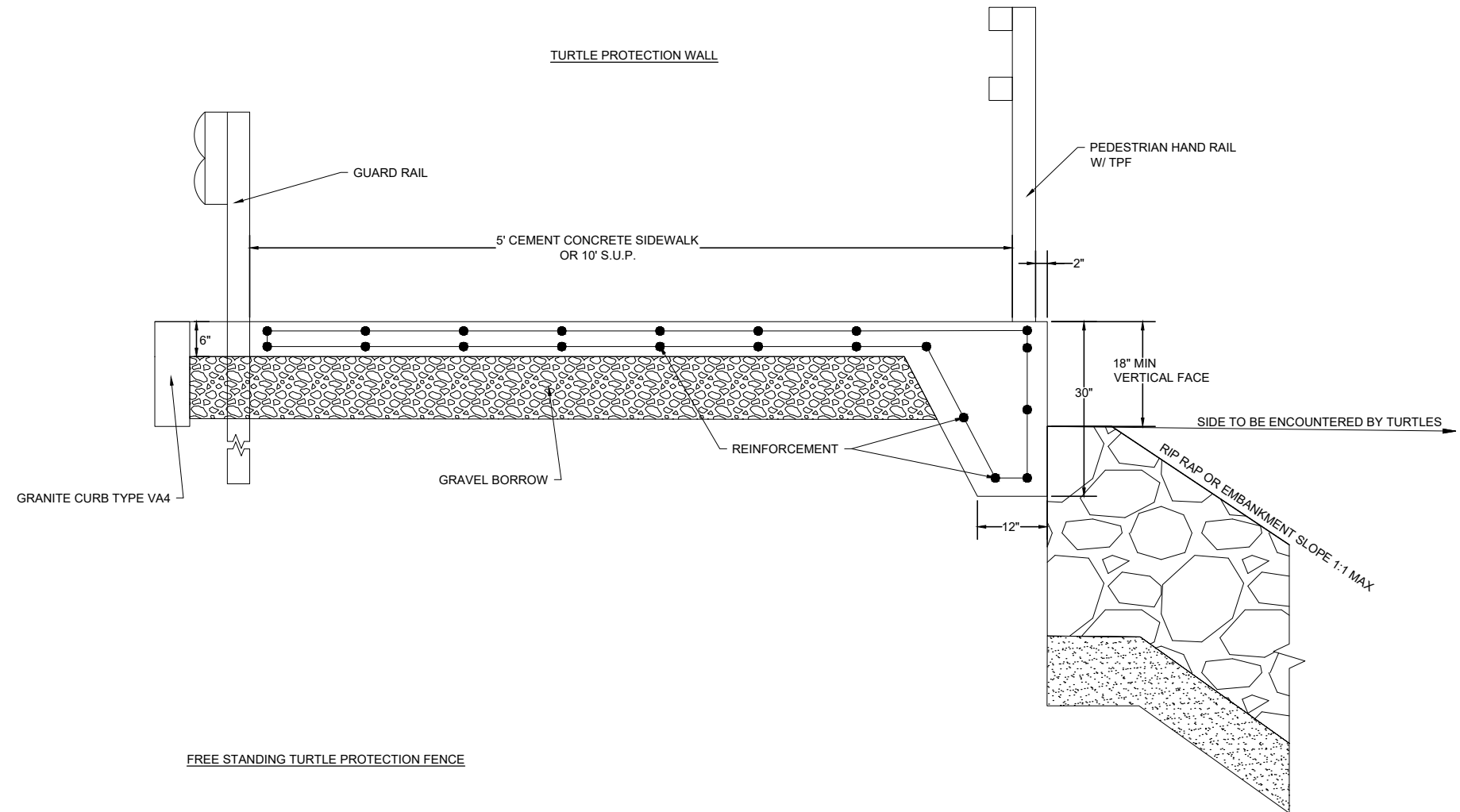
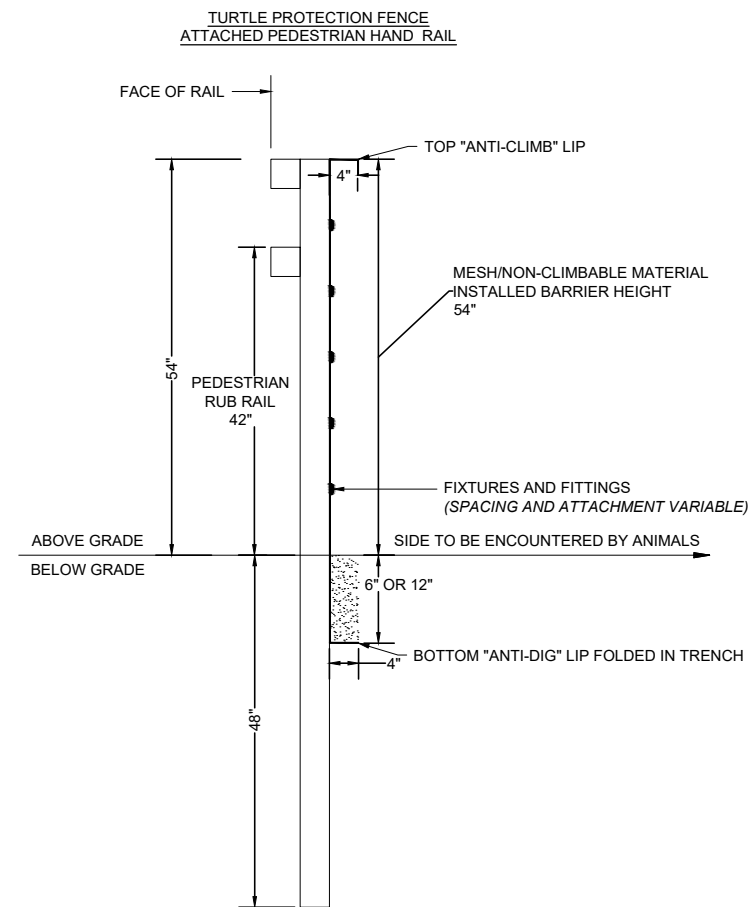
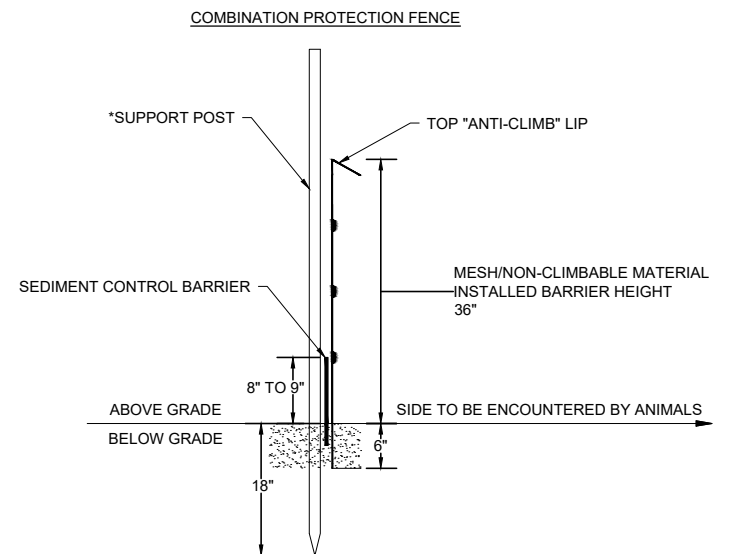
CONTINUED ON
SHEET NO. 34

SHEET 33

CONTINUED ON
SHEET NO. 33



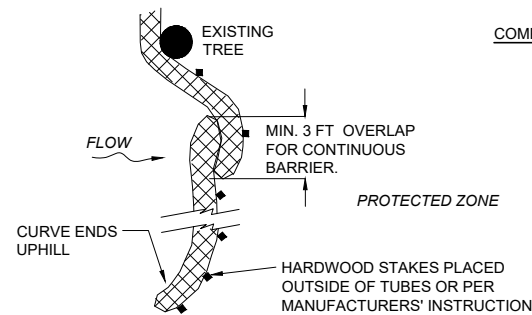
SHEET 34



TURTLE PROTECTION NOTES:

1. THESE SPECIFICATIONS SHOULD BE USED TO AID INSTALLATION. MEASUREMENTS ARE ACCURATE BUT MAY NEED TO BE ADJUSTED DEPENDENT ON LOCATION, CONDITIONS, AND LOCAL AUTHORITY RECOMMENDATIONS.
2. ONE-WAY TURTLE GATES TO BE INSTALLED ON TURTLE PROTECTION FENCE AND SPACED APPROXIMATELY EVERY 150 FEET. THE FINAL DESIGN AND LOCATION OF THE ONE-WAY TURTLE GATES IS TO BE COORDINATED BETWEEN THE CONTRACTOR AND MASSDOT ENVIRONMENTAL SERVICES - WILDLIFE UNIT, AND BASED UPON APPROVAL BY THE MASSACHUSETTS DIVISION OF FISHERIES AND WILDLIFE.
3. CONTRACTOR TO ENSURE NO GAPS ARE PRESENT BETWEEN THE TRANSITION BETWEEN TURTLE PROTECTION FENCE AND TURTLE PROTECTION WALL. MASSDOT ENVIRONMENTAL SERVICES - WILDLIFE UNIT TO REVIEW AND APPROVE FINAL DESIGN OF TURTLE PROTECTION FENCE END TREATMENTS.
4. FINAL DESIGN OF TURTLE PROTECTION GATE TO BE APPROVED BY MASSDOT ENVIRONMENTAL SERVICES - WILDLIFE UNIT AND THE MASSACHUSETTS DIVISION OF FISHERIES AND WILDLIFE.

SHEET 35

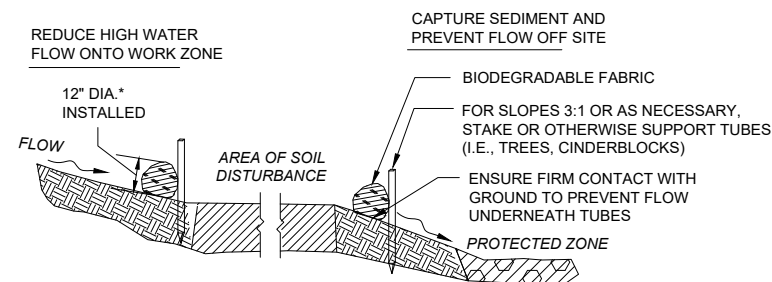


PLACE TUBE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE, ALONG CONTOURS, AND PERPENDICULAR TO FLOW.

ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLAN VIEW - JOIN DETAIL

COMPOST FILTER TUBE



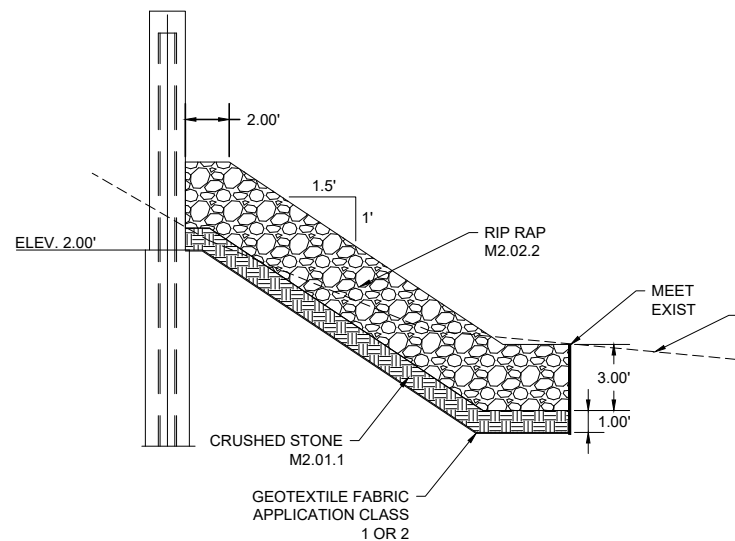
*9 INCH MAY BE USED FOR FLATTER SURFACES WITH APPROVAL FROM ENGINEER

SECTION

NOTE:

1. CONFIGURE TUBES AROUND EXISTING SITE FEATURES TO MINIMIZE SITE DISTURBANCE AND MAXIMIZE CAPTURE AREA OF STORMWATER RUNOFF.
2. TUBES MAY BE PLACED ON THE UPHILL SIDE OF WELL-ANCHORED, STATIONARY FEATURES, SUCH AS EXISTING TREES OR HEADWALLS, IN LIEU OF STAKING.
3. SLOPES LONGER THAN 50 FT. MAY REQUIRE TUBE DIAMETER GREATER THAN 12 IN. REFER TO MANUFACTURER RECOMMENDATIONS FOR SLOPES LONGER THAN 50 FT.
4. TUBE LOCATIONS MAY BE SHIFTED TO ADJUST TO EXISTING LANDSCAPE FEATURES, AND SHALL PROTECT UNDISTURBED AREA TO THE MAXIMUM EXTENT PRACTICABLE.
5. DO NOT INSTALL IN PERENNIAL, EPHEMERAL, OR INTERMITTENT STREAMS.
6. ADDITIONAL TUBES OR STAKING SHALL BE USED AT THE DIRECTION OF THE ENGINEER OR ENVIRONMENTAL MONITOR.
7. TYPE AND LOCATION OF EROSION CONTROL TO BE CONFIRMED WITH RESPECTIVE CONSERVATION COMMISSION PRIOR TO PROCUREMENT OR INSTALLATION.
8. INSTALLATION PROCEDURE TO BE SIMILAR FOR ALL TYPES.

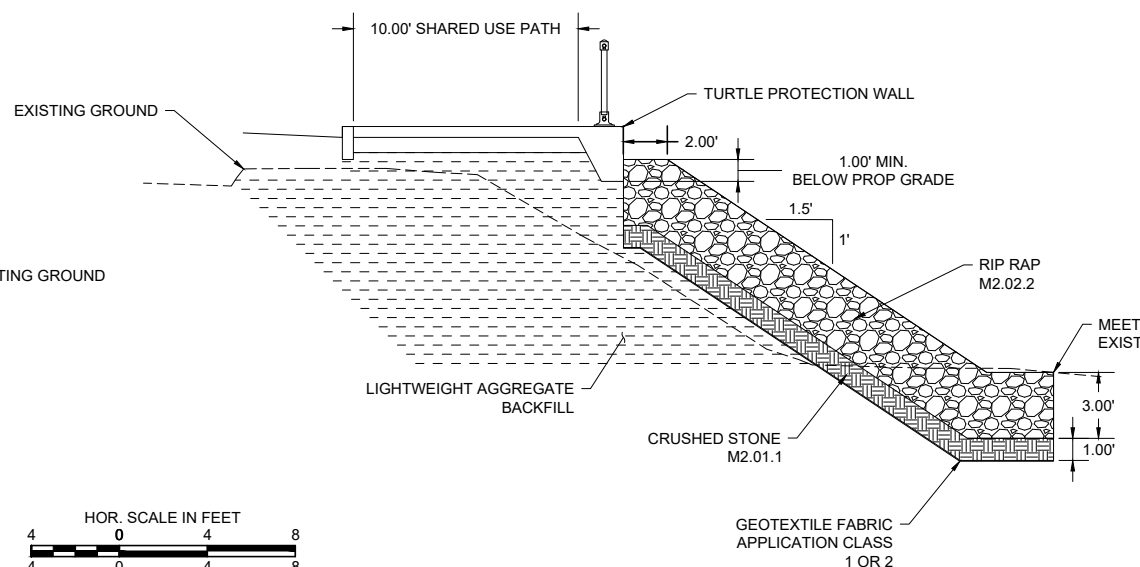
RIP RAP ATTACHED TO RETAINING WALL
NOT TO SCALE



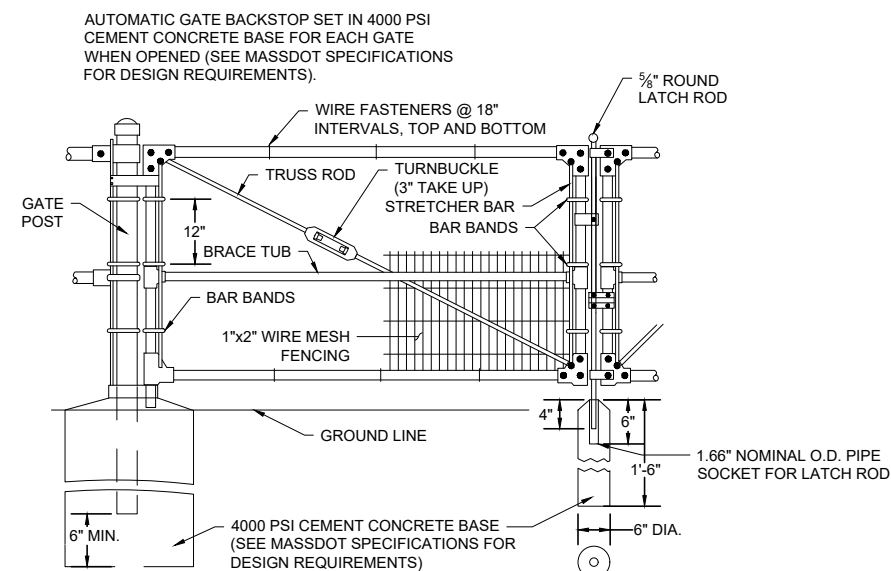
RIP RAP ATTACHED TO TURTLE PROTECTION WALL
NOT TO SCALE

NOTE:

1. RIP RAP SLOPE MAY BE 1 : 1 OR GREATER.



TURTLE PROTECTION FENCE GATE
NOT TO SCALE



EXISTING SITE NOTES:

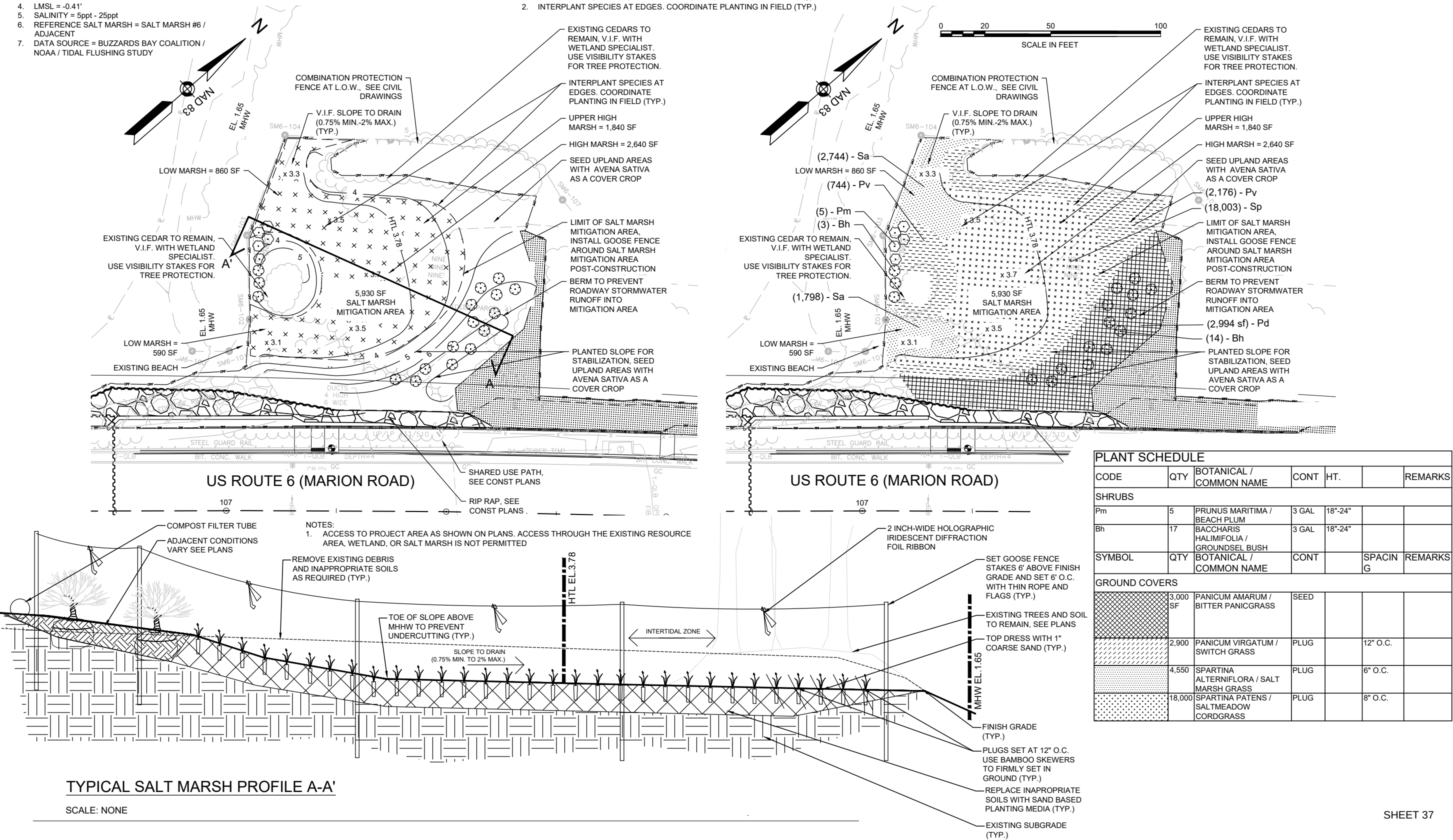
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY

MITIGATION SITE PLAN

GENERAL NOTE:

1. MITIGATION AND PLANTING AREA SHOWN ON PLAN IS CONSIDERED SCHEMATIC IN NATURE, AND SHALL BE COORDINATED AND VERIFIED IN THE FIELD BY THE WETLAND SPECIALIST. AREAS AND NUMBERS OF PLANTS MAY CHANGE PER THE PERMIT REQUIREMENTS.
2. INTERPLANT SPECIES AT EDGES. COORDINATE PLANTING IN FIELD (TYP.)

MITIGATION PLANTING PLAN



PLANT SCHEDULE						
CODE	QTY	BOTANICAL / COMMON NAME	CONT	HT.		REMARKS
SHRUBS						
Pm	5	PRUNUS MARITIMA / BEACH PLUM	3 GAL	18"-24"		
Bh	17	BACCHARIS HALIMIFOLIA / GROUNDSEL BUSH	3 GAL	18"-24"		
SYMBOL	QTY	BOTANICAL / COMMON NAME	CONT		SPACIN G	REMARKS
GROUND COVERS						
	3,000 SF	PANICUM AMARUM / BITTER PANICGRASS	SEED			
	2,900	PANICUM VIRGATUM / SWITCH GRASS	PLUG		12" O.C.	
	4,550	SPARTINA ALTERNIFLORA / SALT MARSH GRASS	PLUG		6" O.C.	
	18,000	SPARTINA PATENS / SALTMEADOW CORDGRASS	PLUG		8" O.C.	

PLANTING NOTES:

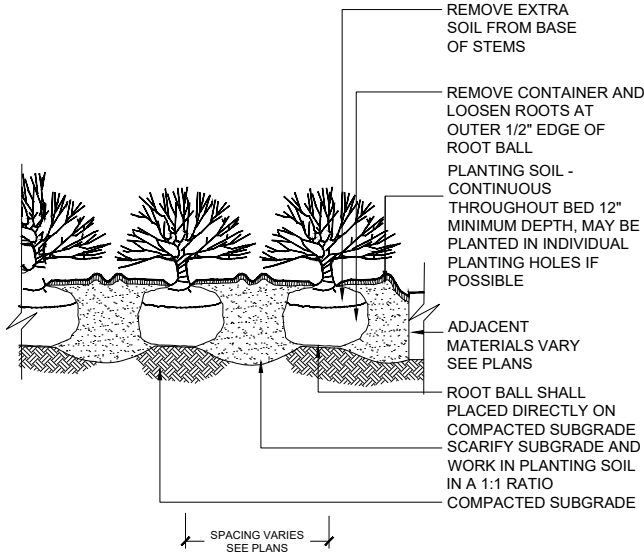
1. VERIFY EXISTING UTILITY LINES PRIOR TO PLANTING AND REPORT CONFLICTS TO THE RESIDENT ENGINEER.
2. CONTRACTOR SHALL COORDINATE PLANTING INSTALLATION WITH WORK BEING DONE BY OTHERS.
3. TREES TO BE SAVED SHALL BE PROTECTED. USE TREE AND PLANT PROTECTION - VISIBILITY STAKES. WORK SHALL NOT OCCUR BEYOND AREA DELINEATED BY STAKES.
4. NO PLANTING SHALL OCCUR PRIOR TO ACCEPTANCE OF FINAL GRADING.
5. PLANT MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. SEE SPECIFICATION FOR DETAILED REQUIREMENTS. PROPOSED SUBSTITUTIONS OF PLANT MATERIAL SHALL BE MADE WITH MATERIAL EQUIVALENT TO THE DESIRED MATERIAL IN OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE.
6. PLANT QUANTITIES NOTED IN THE PLANT SCHEDULE ARE APPROXIMATE AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FURNISHING AND INSTALLATION OF PLANT MATERIALS NOTED ON THE PLANTING PLAN.
7. PLANTED AREAS SHALL BE PITCHED A MINIMUM OF 0.75% TO 2% MAXIMUM FOR SALT MARSH AREA, AND 3:1 MAX OUTSIDE THE MITIGATION AREA.
8. INSTALL PLANTS WITH ROOT FLARES FLUSH WITH GRADE. IMMEDIATELY REPLANT PLANTS WHICH SETTLE OUT OF PLUMB OR BELOW FINISH GRADE. CAUTION SHALL BE USED NOT TO EXTEND MULCH LAYER ABOVE SOIL LEVEL AT TRUNKS/STEMS OF INSTALLED PLANT MATERIAL.
9. THE CONTRACTOR IS RESPONSIBLE FOR FULLY MAINTAINING PLANTING (INCLUDING BUT NOT LIMITED TO: WATERING, SPRAYING, MULCHING, FERTILIZING, ETC.) OF THE PLANTING AREAS UNTIL THE WORK IS ACCEPTED IN TOTAL BY THE RESIDENT ENGINEER. PROVIDE A MINIMUM

EQUIVALENT OF 1" OF RAIN PER WEEK DURING THE ESTABLISHMENT PERIOD. WATERING SHALL ONLY OCCUR UPLAND, MARSH WATERING IS NOT REQUIRED.

10. PLANT MATERIAL WHICH DIES, TURNS BROWN, OR DEFOLIATES (PRIOR TO FINAL ACCEPTANCE OF THE WORK) SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, AND SIZE AND MEET PLANT LIST SPECIFICATIONS.
11. THE CONTRACTOR SHALL COMPLETELY GUARANTEE PLANT MATERIAL FOR A PERIOD OF ONE (1) YEAR BEGINNING ON THE DATE OF FINAL ACCEPTANCE. THE CONTRACTOR SHALL PROMPTLY MAKE REPLACEMENTS BEFORE OR AT THE END OF THE GUARANTEE PERIOD, AS DIRECTED BY THE RESIDENT ENGINEER WITHIN THE SPECIFIED PLANTING WINDOW.

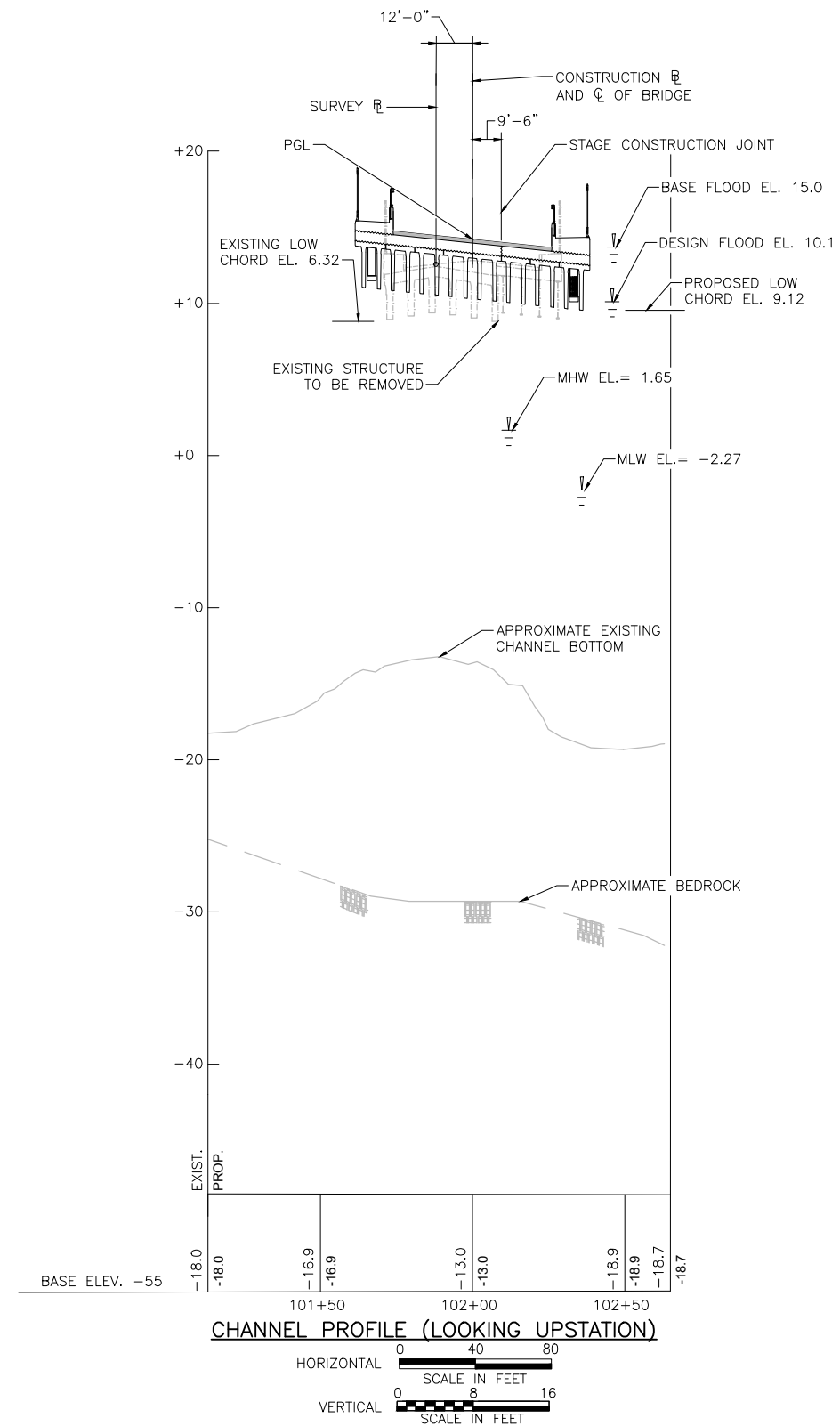
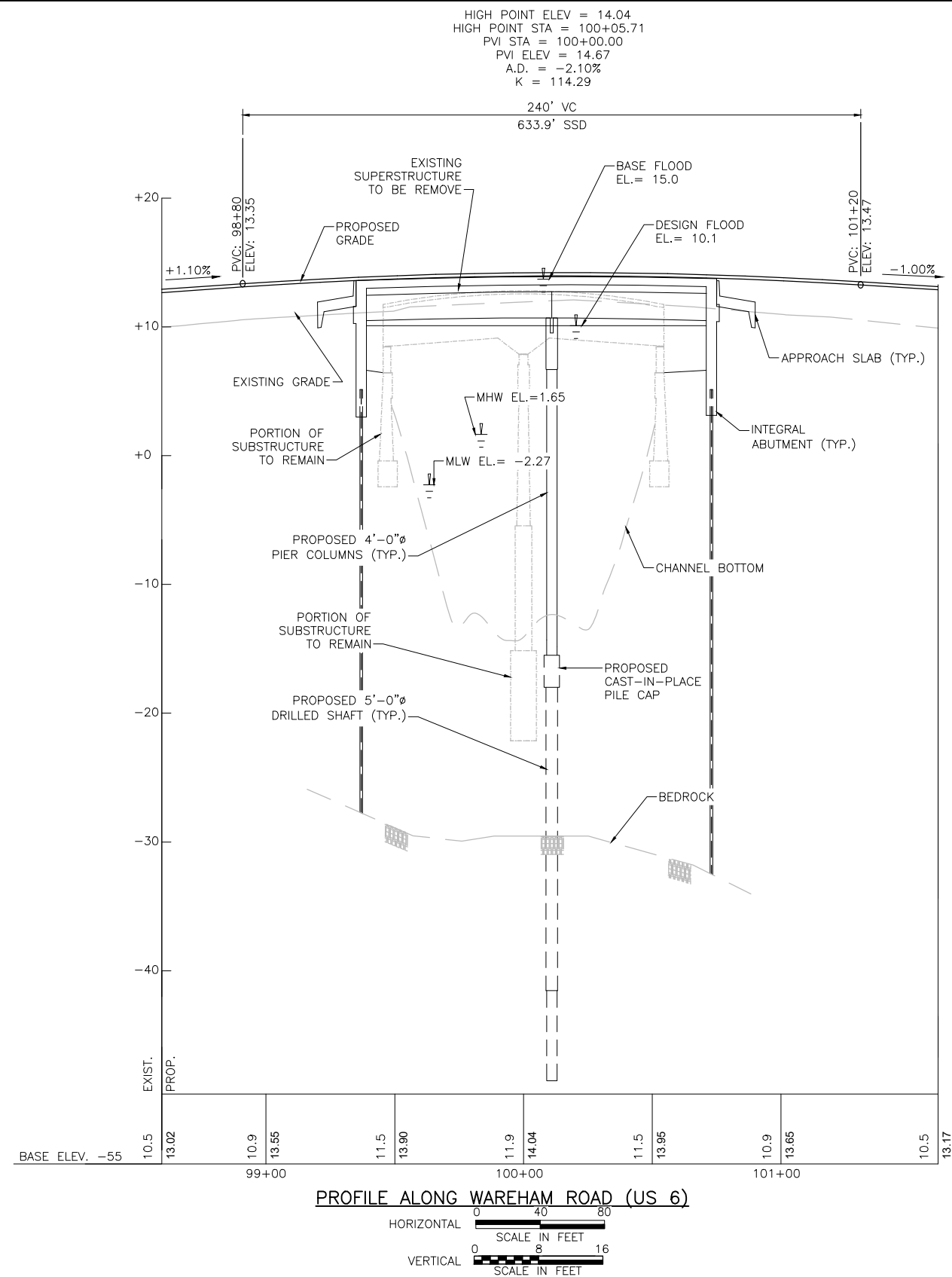
NOTES:

1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. NO PRUNING OR CUTTING UNLESS DIRECTED BY THE WETLAND SPECIALIST.
3. SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING.
4. SHRUBS SHALL BE SET PLUMB AND PLANTED SO THAT THE TOP OF THE TOP OF THE ROOTS IS 1"-2" ABOVE FINISHED GRADE OR CONTAINER SURFACE IS AT GRADE.

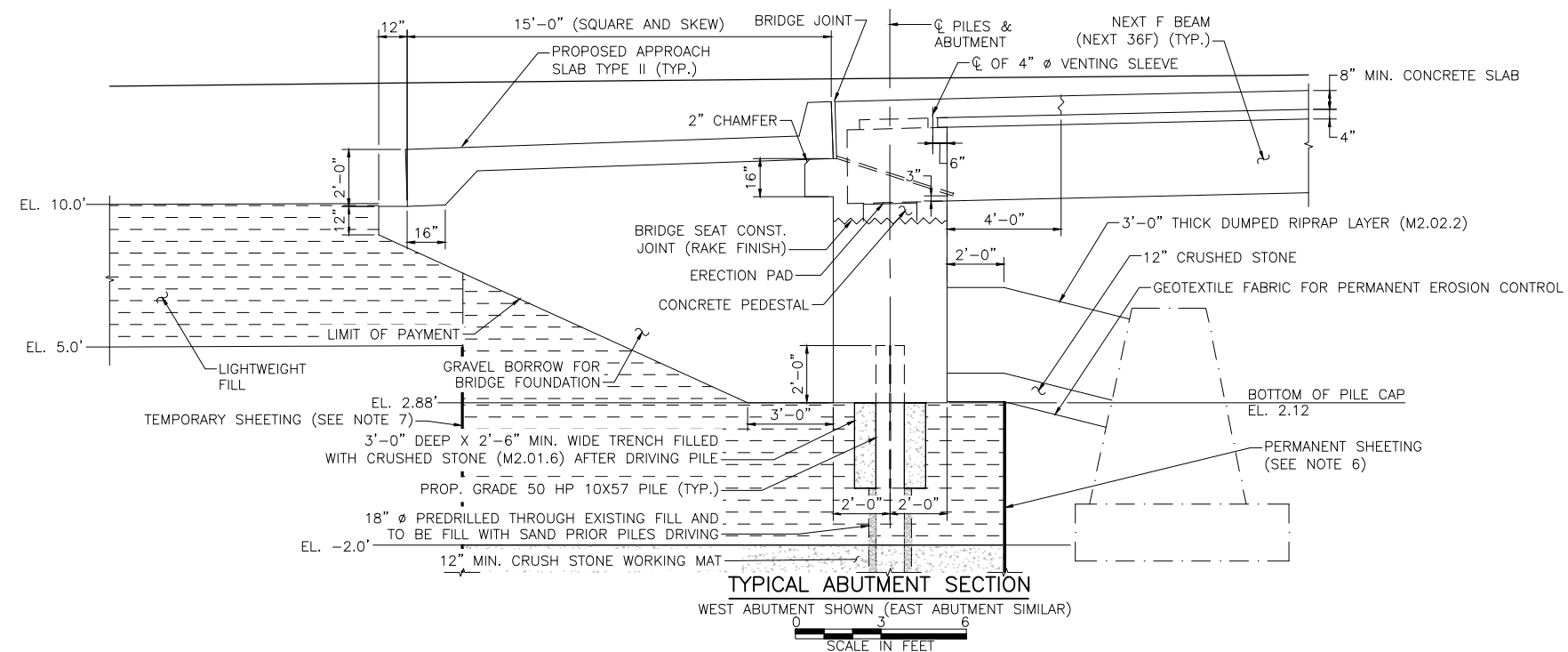


SHRUB PLANTING BED

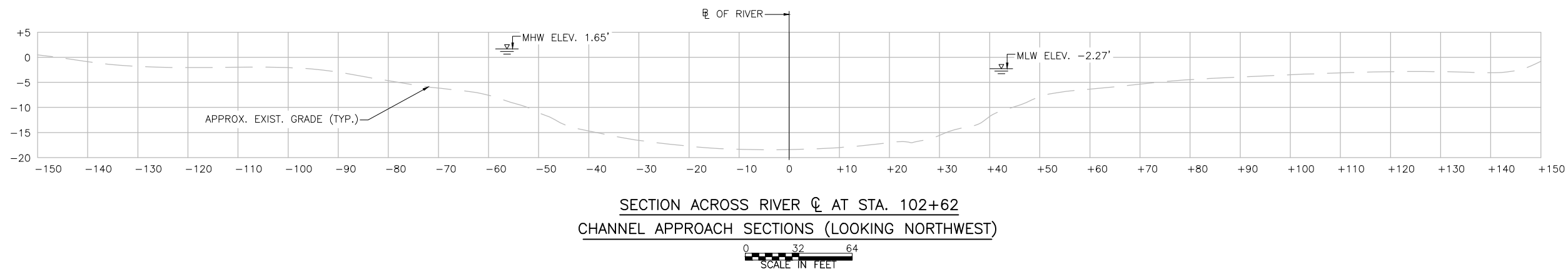
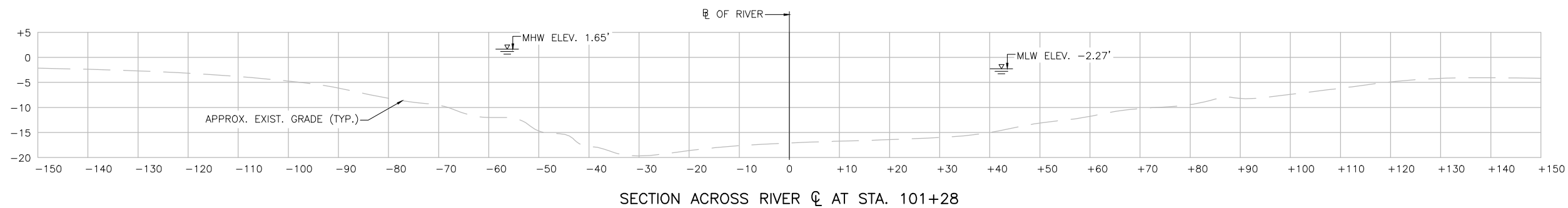
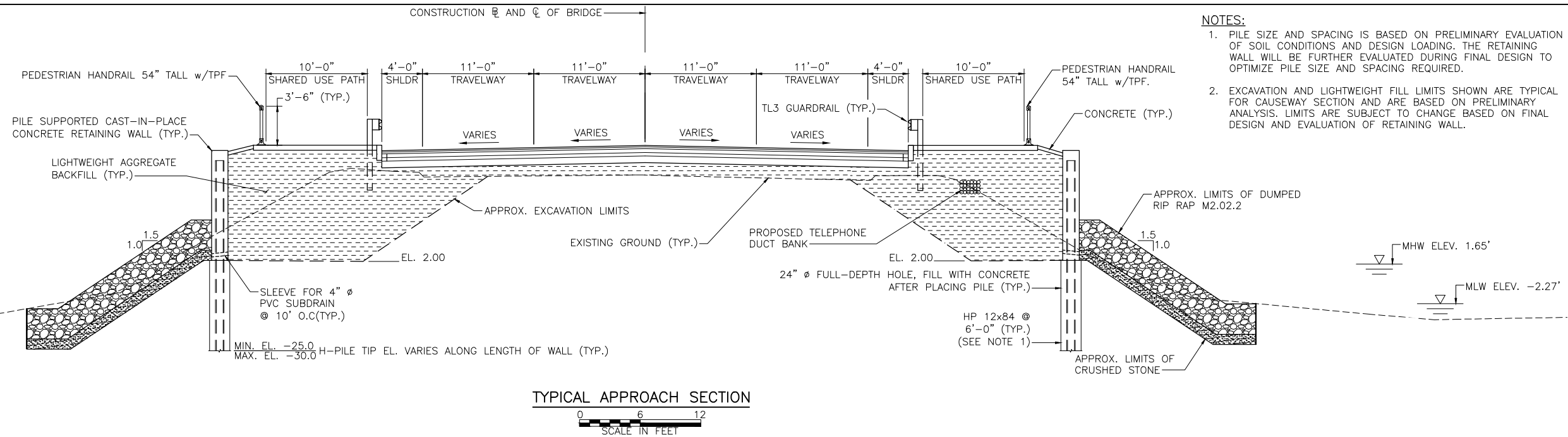
SCALE: NONE

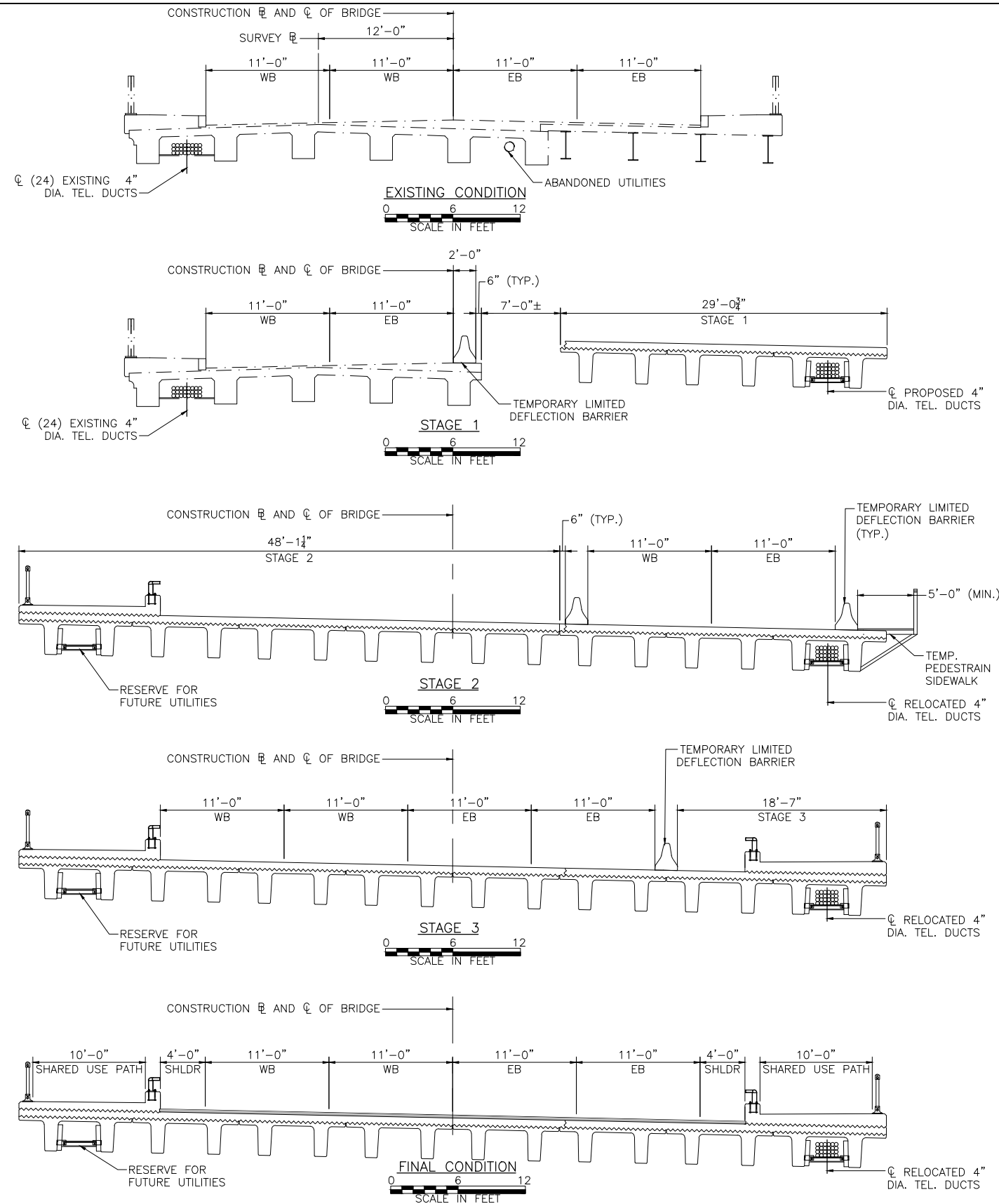


SHEET 39



- SHEET 40





STAGE 1:

- 1.1 SHIFT TRAFFIC TO THE NORTH MAINTAINING ONE LANE IN EACH DIRECTION.
- 1.2 DEMOLISH SOUTHERLY PORTION OF EXISTING STRUCTURE.
- 1.3 CONSTRUCT PORTION OF NEW STRUCTURE AS SHOWN.
- 1.4 INSTALL 4" DIAMETER TELECOM DUCTS.

STAGE 2:

- 2.1 SHIFT TRAFFIC TO SOUTHERLY PORTION OF NEW STRUCTURE MAINTAINING ONE LANE IN EACH DIRECTION.
- 2.2 CONSTRUCT REMAINDER OF NEW STRUCTURE AS SHOWN.
- 2.3 CONSTRUCT NORTHERLY SHARED USE PATH AND BRIDGE RAIL.
- 2.4 RELOCATE FIBER CABLES IN 4" DIAMETER TELECOM DUCTS

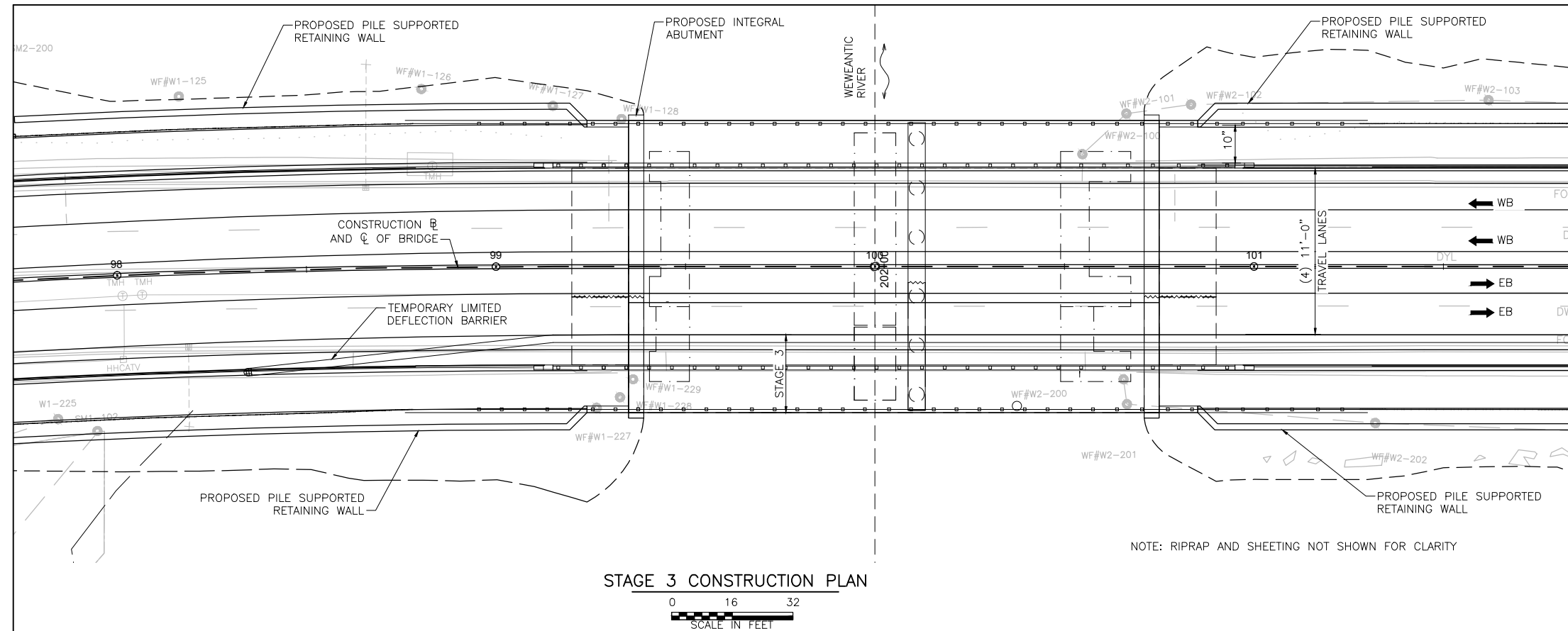
STAGE 3:

- 3.1 SHIFT TRAFFIC NORTHERLY MAINTAINING FOUR LANES OF TRAFFIC, TWO IN EACH DIRECTION.
- 3.2 CONSTRUCT SOUTHERLY SHARED USE PATH AND BRIDGE RAIL

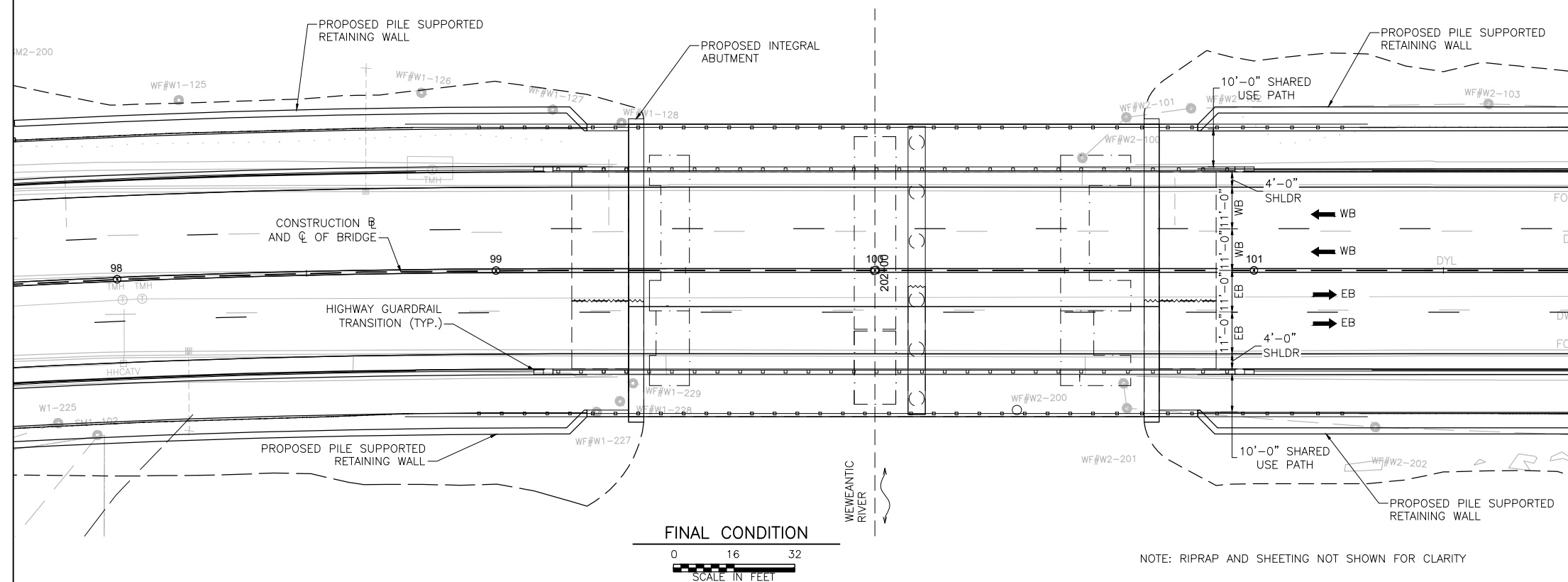
FINAL STAGE:

- REMOVE BARRIER AND INSTALL SPRAY APPLIED WATER PROOFING MEMBRANE AND HMA WEARING SURFACE.

SHEET 42



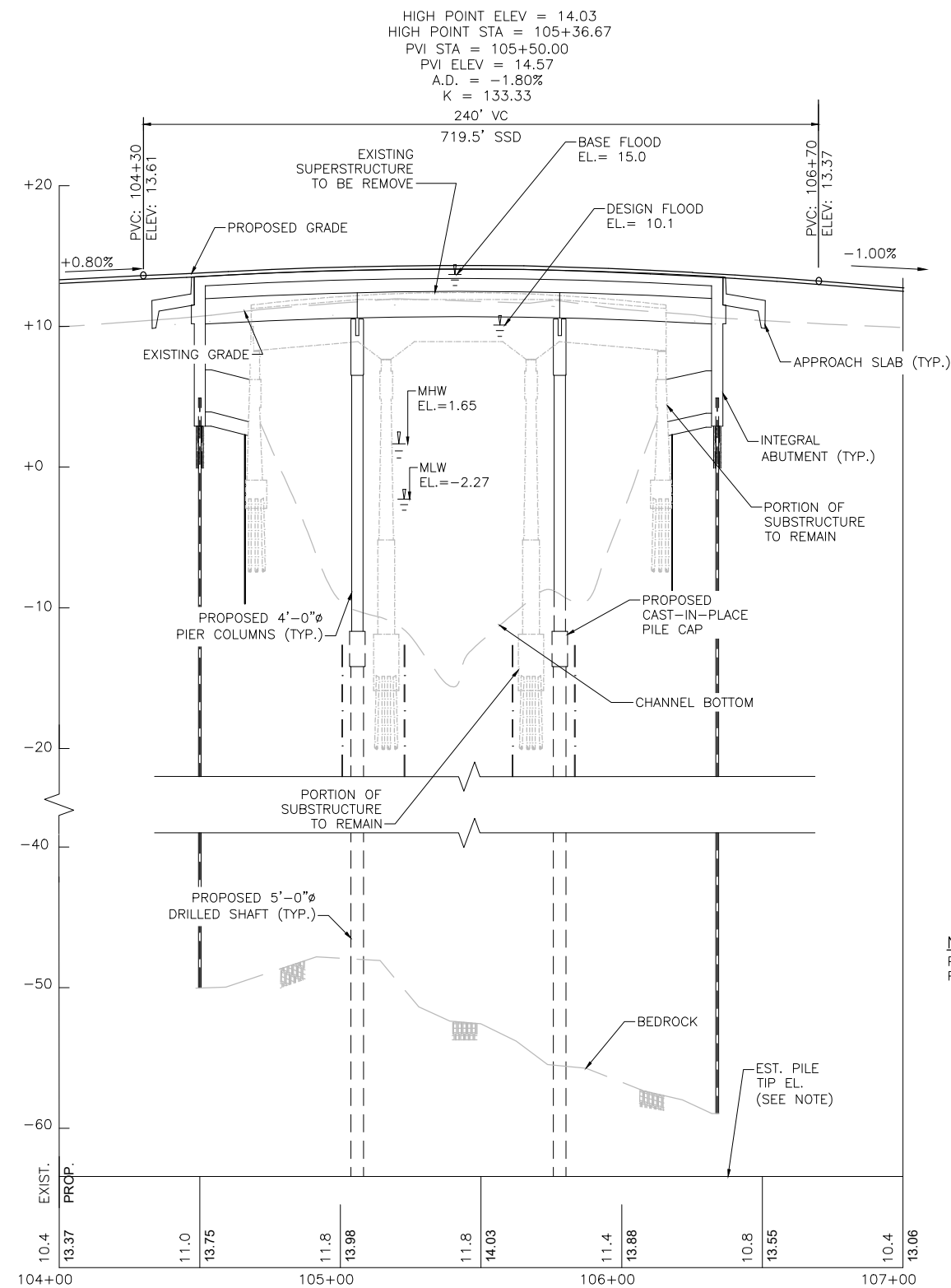
- STAGE 3:
- 3.1 SHIFT TRAFFIC NORTHERLY MAINTAINING FOUR LANES OF TRAFFIC, TWO IN EACH DIRECTION.
 - 3.2 CONSTRUCT SOUTHERLY SHARED USE PATH AND BRIDGE RAIL.



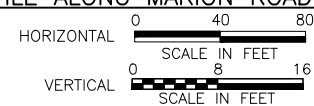
FINAL STAGE:

REMOVE BARRIER AND INSTALL SPRAY APPLIED WATER PROOFING MEMBRANE AND HMA WEARING SURFACE.

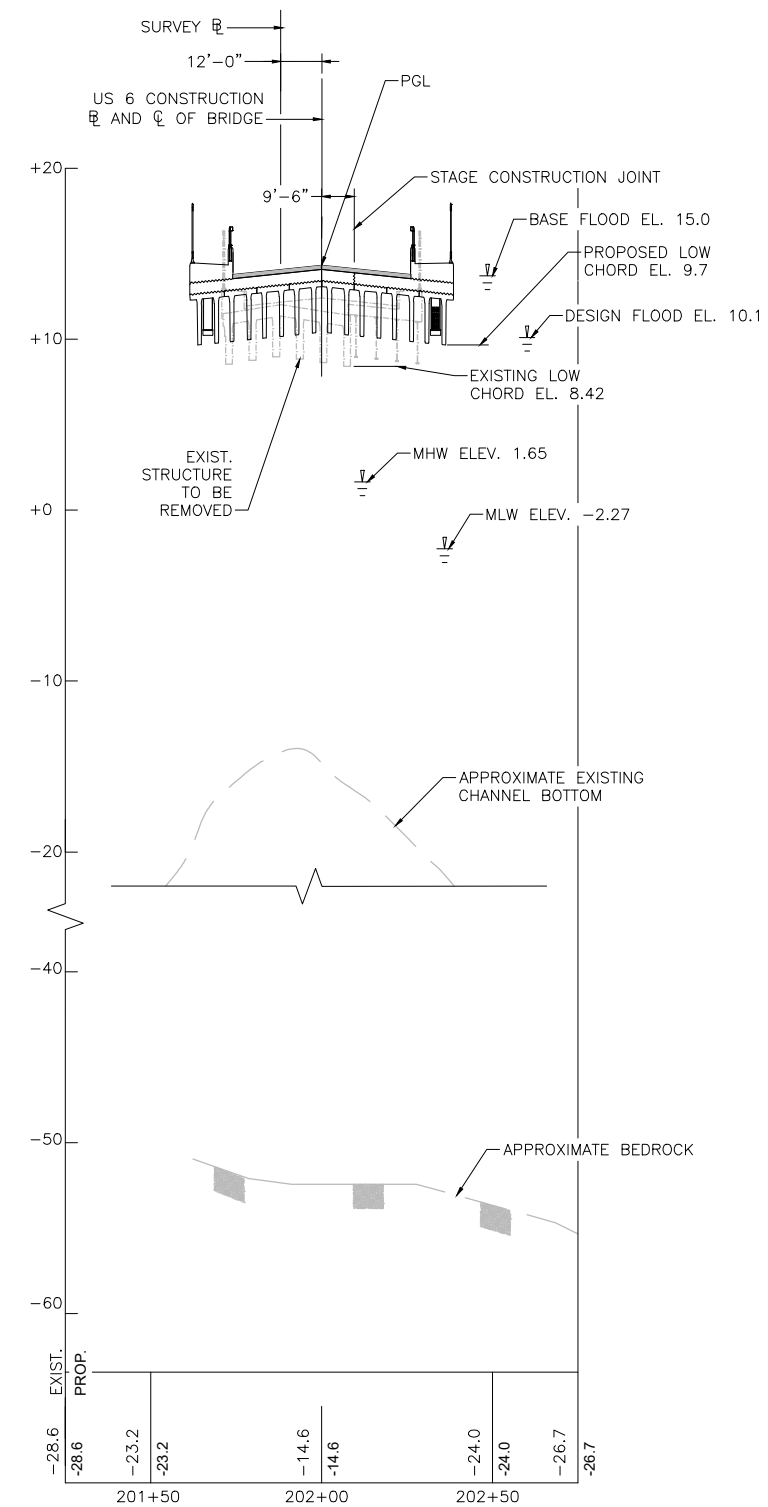
SHEET 44



PROFILE ALONG MARION ROAD (US 6)



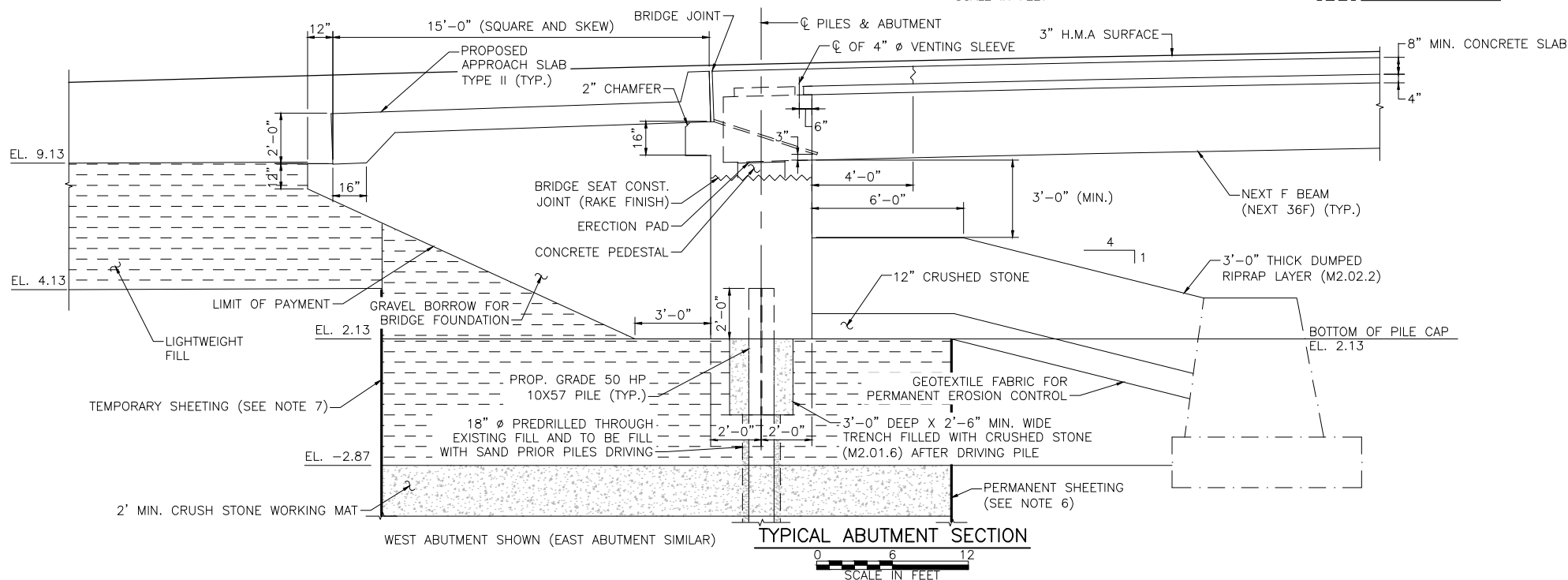
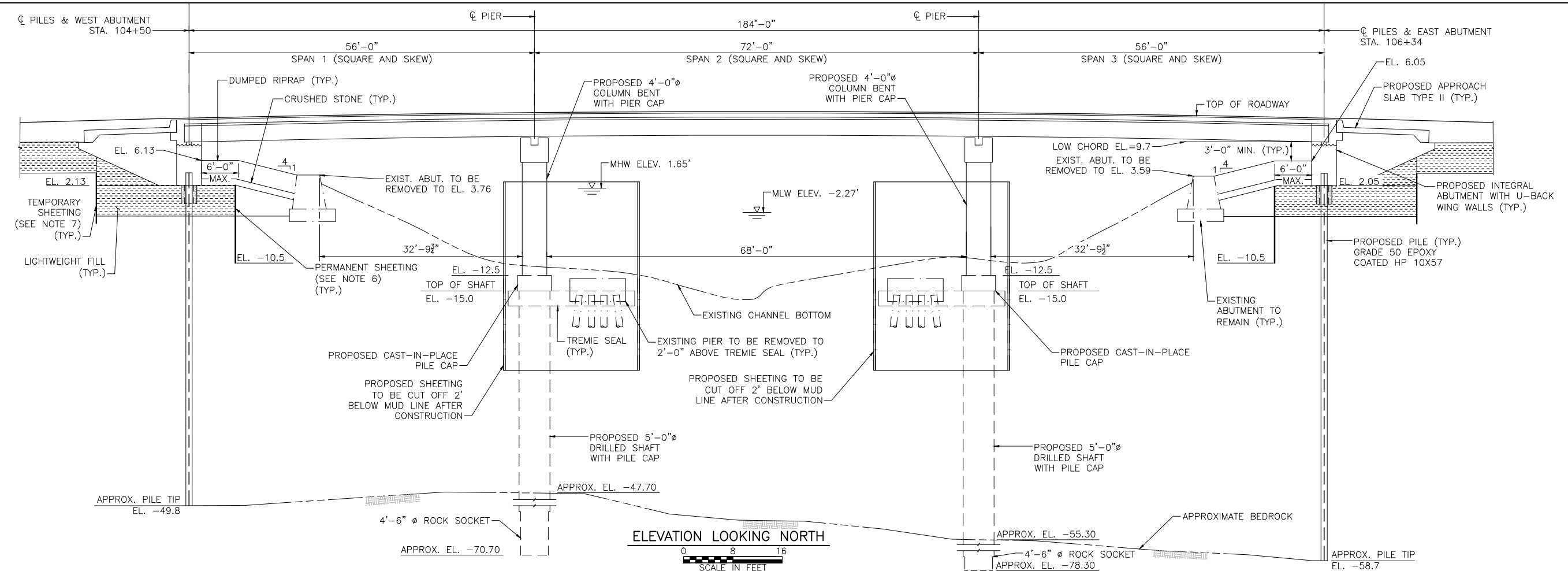
NOTE:
 PIER 1 EST. TIP EL. -70.70
 PIER 2 EST. TIP EL. -78.30



CHANNEL PROFILE (LOOKING UPSTATION)



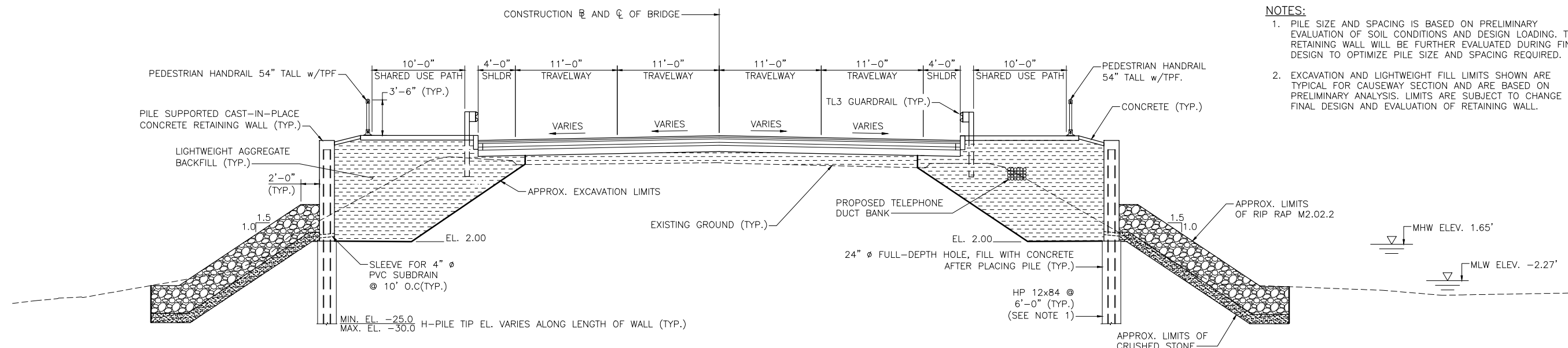
SHEET 45



NOTES:

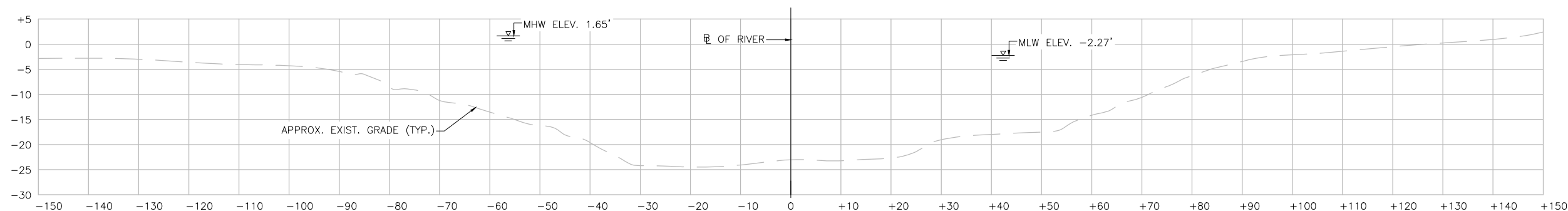
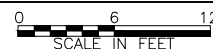
1. MINIMUM VERTICAL CLEARANCE AT MHW OCCURS AT THE SOUTHERN EXTERIOR GIRDER AT THE EAST END OF THE STRUCTURE. EXISTING VERTICAL CLEARANCE FROM MHW TO THE BOTTOM GIRDER FLANGE IS 5.90', PROPOSED MINIMUM VERTICAL CLEARANCE IS 6.05'.
2. THE FACTORED AXIAL DESIGN LOAD PER PILE IS 337.1 KIPS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION. THE FACTORED STRUCTURAL RESISTANCE PER PILE IS 417.5 KIPS.
3. THE FACTORED DRILLED SHAFT LOAD IS 1,047 KIPS. THE FACTORED DRILLED SHAFT RESISTANCE IS 5,535 KIPS.
4. THE DESIGN (25 YEAR) FLOOD ELEVATION IS 10.1'. THE BASE (100-YEAR) FLOOD ELEVATION IS 15.0'.
5. THE PRESSURE DESIGN SCOUR DEPTH IS 2.0', PRESSURE CHECK SCOUR DEPTH IS 5.5', PIER DESIGN SCOUR DEPTH IS 10.0', PIER CHECK SCOUR DEPTH IS 12.0'.
6. PERMANENT SHEETING FOR SCOUR PROTECTION, WATER CONTROL AND PLACEMENT OF LIGHTWEIGHT FILL. SHEETING TO BE DESIGNED TO MEET DESIGN SCOUR EVENT FOR PROTECTION OF PROPOSED ABUTMENTS. SEE SHEET 27 FOR PLAN LAYOUT.
7. TEMPORARY SHEETING FOR WATER CONTROL AND PLACEMENT OF LIGHTWEIGHT FILL. SEE SHEET 27 FOR PLAN LAYOUT.

SHEET 46

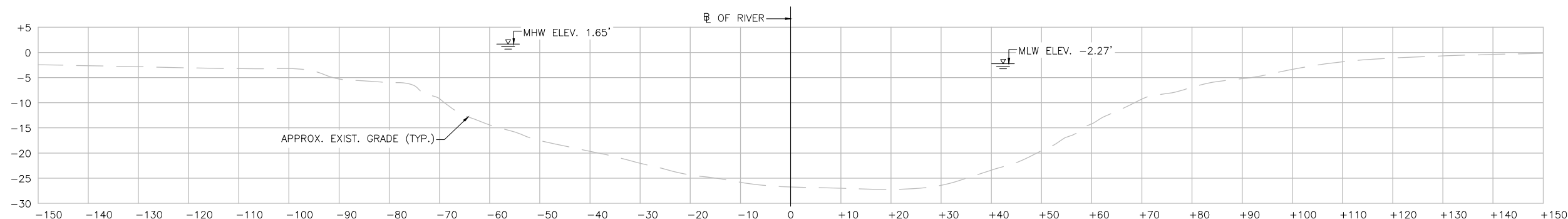


- NOTES:**
1. PILE SIZE AND SPACING IS BASED ON PRELIMINARY EVALUATION OF SOIL CONDITIONS AND DESIGN LOADING. THE RETAINING WALL WILL BE FURTHER EVALUATED DURING FINAL DESIGN TO OPTIMIZE PILE SIZE AND SPACING REQUIRED.
 2. EXCAVATION AND LIGHTWEIGHT FILL LIMITS SHOWN ARE TYPICAL FOR CAUSEWAY SECTION AND ARE BASED ON PRELIMINARY ANALYSIS. LIMITS ARE SUBJECT TO CHANGE ON FINAL DESIGN AND EVALUATION OF RETAINING WALL.

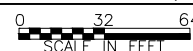
TYPICAL APPROACH SECTION

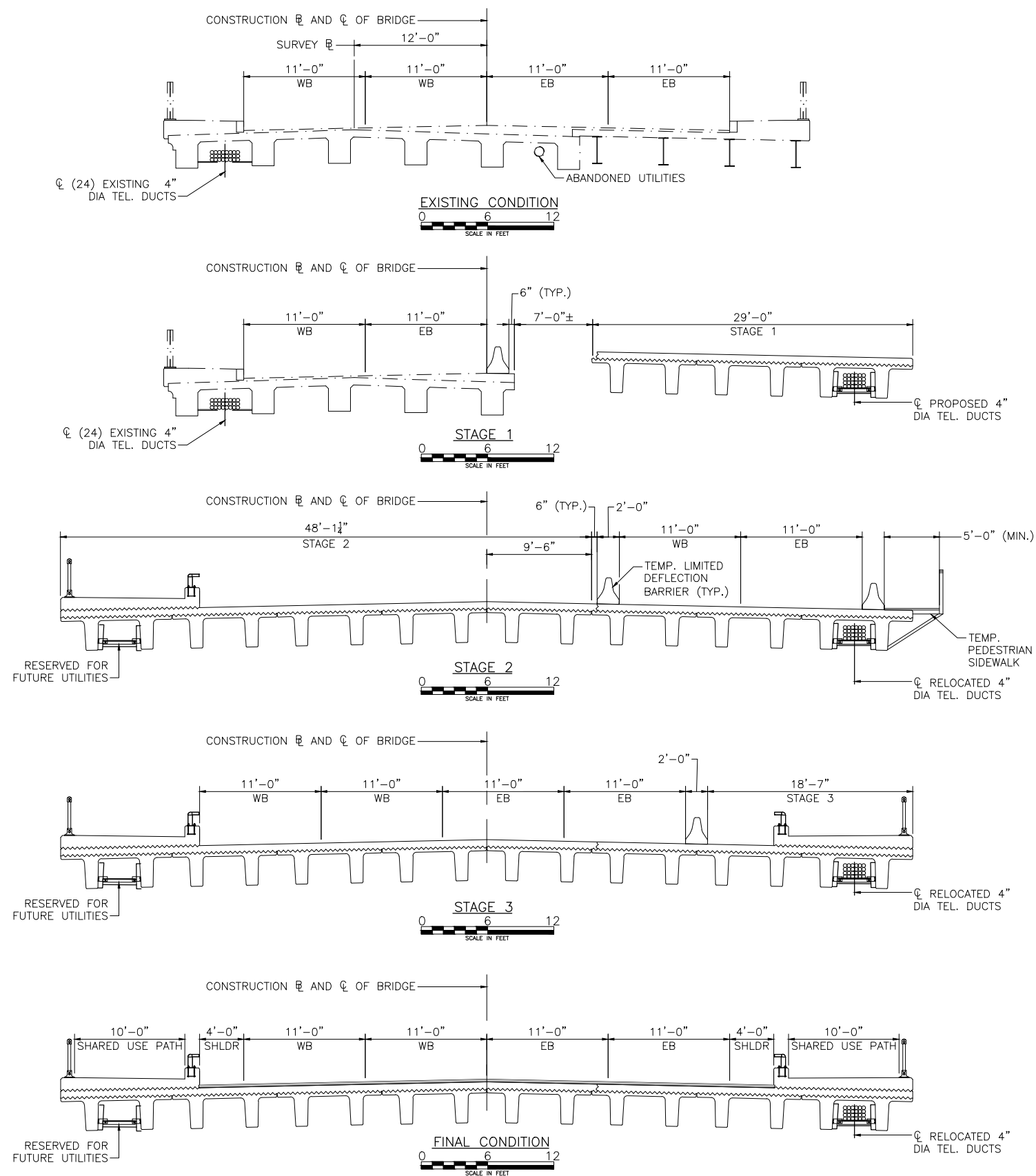


SECTION ACROSS RIVER CL AT STA. 201+38



**SECTION ACROSS RIVER CL AT STA. 202+62
CHANNEL APPROACH SECTIONS (LOOKING NORTHWEST)**





- STAGE 1:
- 1.1 SHIFT TRAFFIC TO THE NORTH MAINTAINING ONE LANE IN EACH DIRECTION.
 - 1.2 DEMOLISH SOUTHERLY PORTION OF EXISTING STRUCTURE.
 - 1.3 CONSTRUCT PORTION OF NEW STRUCTURE AS SHOWN.
 - 1.4 INSTALL 4" DIAMETER TELECOM DUCTS.

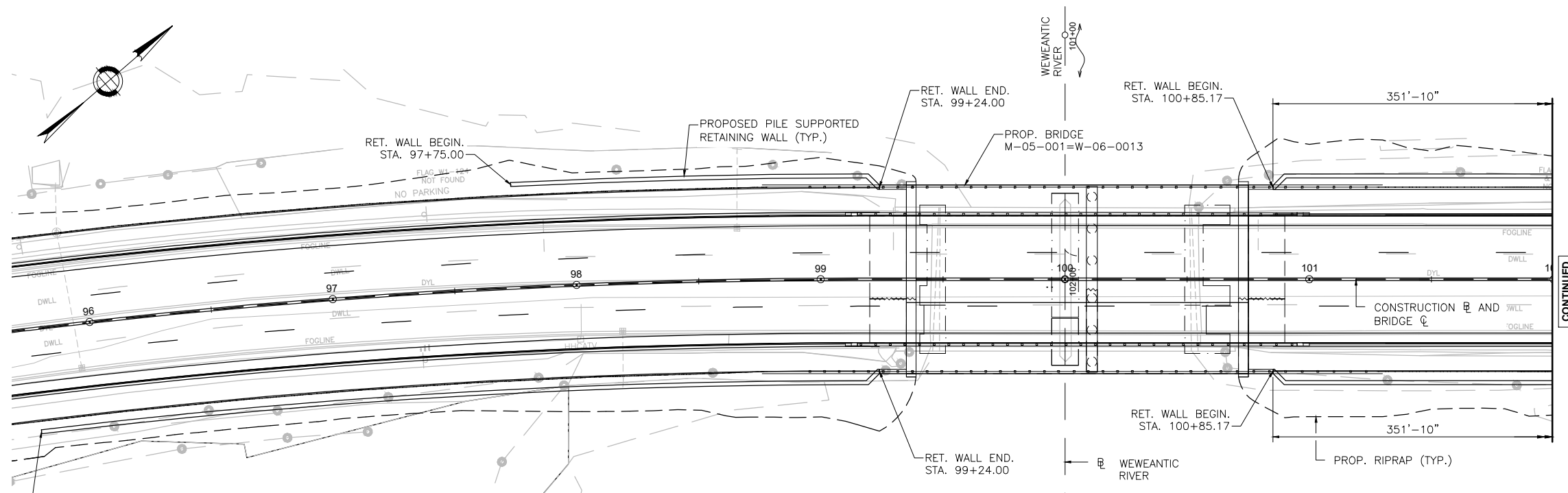
- STAGE 2:
- 2.1 SHIFT TRAFFIC TO SOUTHERLY PORTION OF NEW STRUCTURE MAINTAINING ONE LANE IN EACH DIRECTION.
 - 2.2 DEMOLISH NORTHERLY PORTION OF EXISTING STRUCTURE.
 - 2.3 CONSTRUCT REMAINDER OF NEW STRUCTURE AS SHOWN.
 - 2.4 RELOCATE FIBER CABLES IN 4" DIAMETER TELECOM DUCTS

- STAGE 3:
- 3.1 SHIFT TRAFFIC TRAFFIC NORTHERLY MAINTAINING FOUR LANES OF TRAFFIC, TWO IN EACH DIRECTION.
 - 3.2 CONSTRUCT SOUTHERLY SHARED USE PATH AND BRIDGE RAIL.

FINAL STAGE:

REMOVE TEMPORARY BARRIER AND INSTALL SPRAY APPLIED WATER PROOFING MEMBRANE AND HMA WEARING SURFACE.

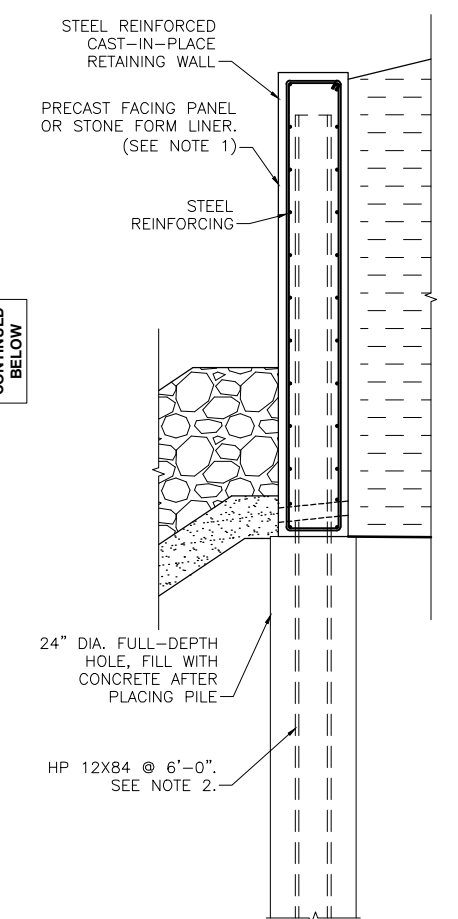
SHEET 48



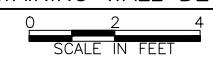
PILE SUPPORTED CONCRETE RETAINING WALL PLAN
NOT TO SCALE

NOTE: RIPRAP AND SHEETING NOT SHOWN FOR CLARITY

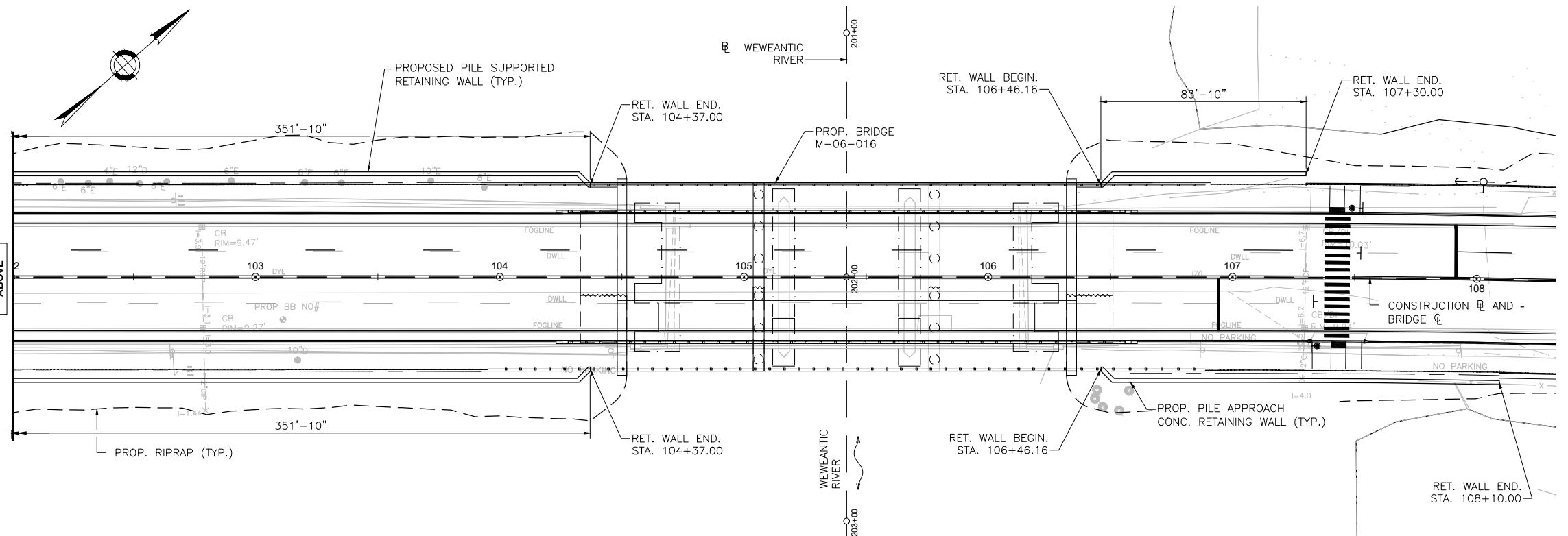
CONTINUED
BELOW

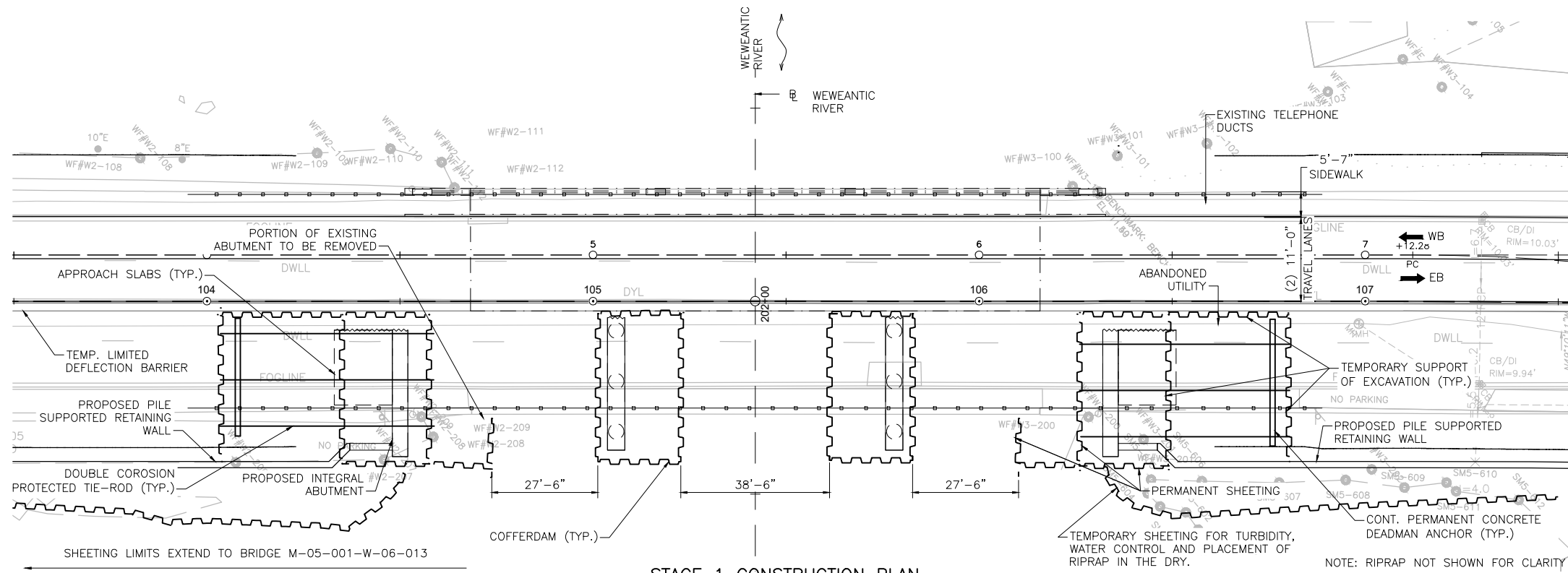


PILE SUPPORTED CONCRETE RETAINING WALL DETAIL



1. PRECAST CONCRETE FACING OR STONE TYPE FORM LINER TO PROVIDE AESTHETIC RETAINING WALL FINISH WILL BE EVALUATED FURTHER DURING FINAL DESIGN.
2. PILE SIZE AND SPACING IS BASED ON PRELIMINARY EVALUATION OF SOIL CONDITIONS AND DESIGN LOADING. THE RETAINING WALL WILL BE FURTHER EVALUATED DURING FINAL DESIGN TO OPTIMIZE PILE AND SPACING REQUIRED.

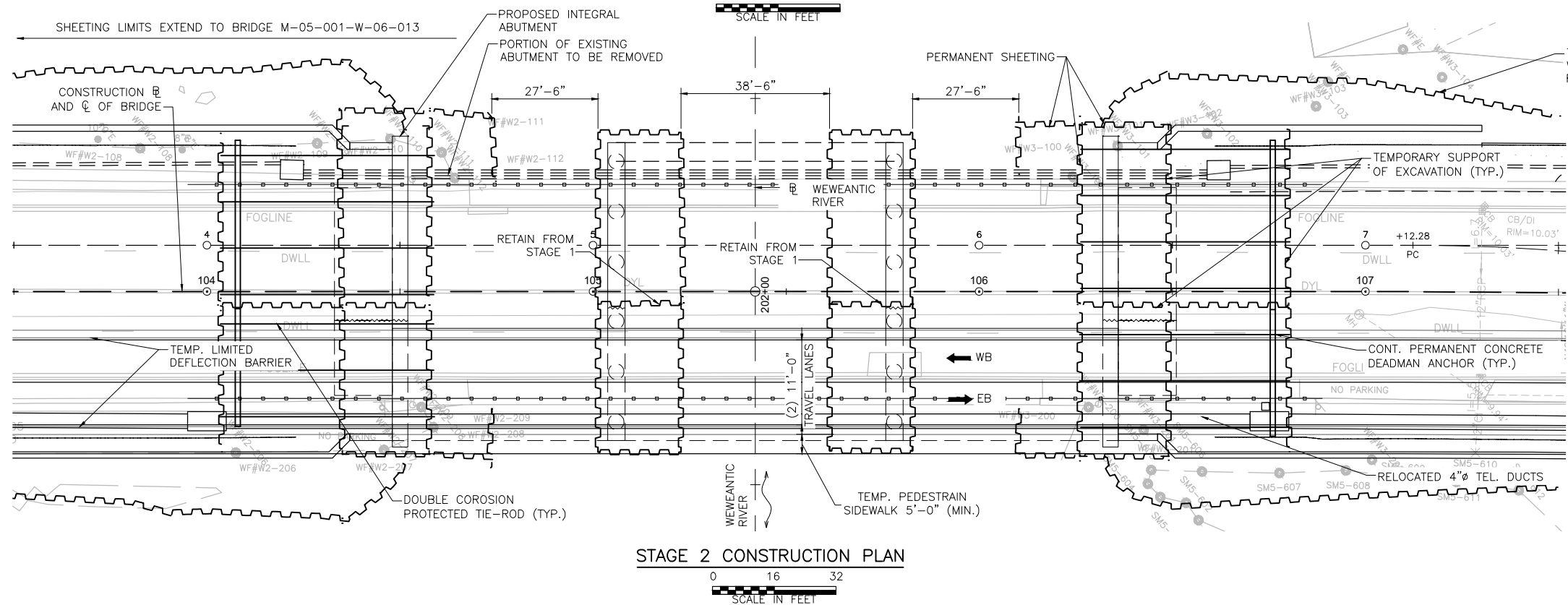




SUGGESTED SEQUENCE OF WATER CONTROL

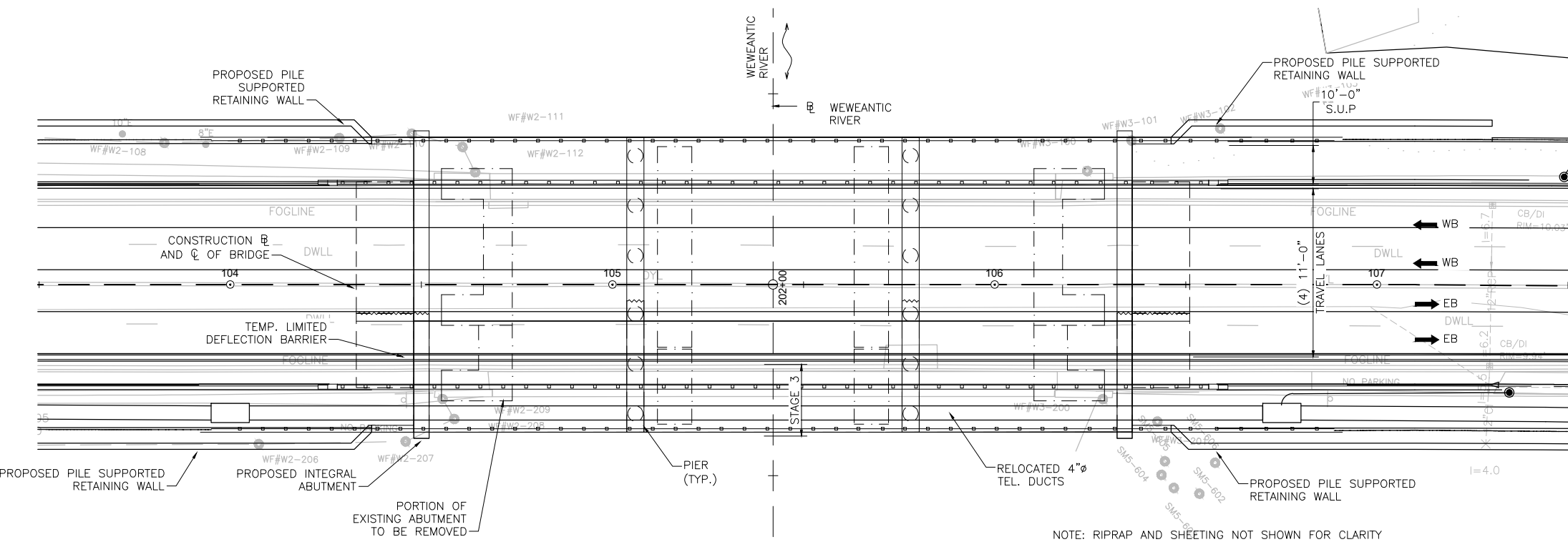
STAGE 1:

- 1.1 DEMOLISH SOUTHERLY PORTION OF EXISTING STRUCTURE.
- 1.2 INSTALL STAGE 1 PIER COFFERDAM AND TEMPORARY SHEETING.
- 1.3 REMOVE SOUTHERLY PORTION OF PIER AND ABUTMENTS.
- 1.4 CONSTRUCT NEW SOUTHERLY PORTION OF PIER AND INTEGRAL ABUTMENTS.
- 1.5 REMOVE STAGE 1 PIER COFFERDAM AND TEMPORARY SHEETING.

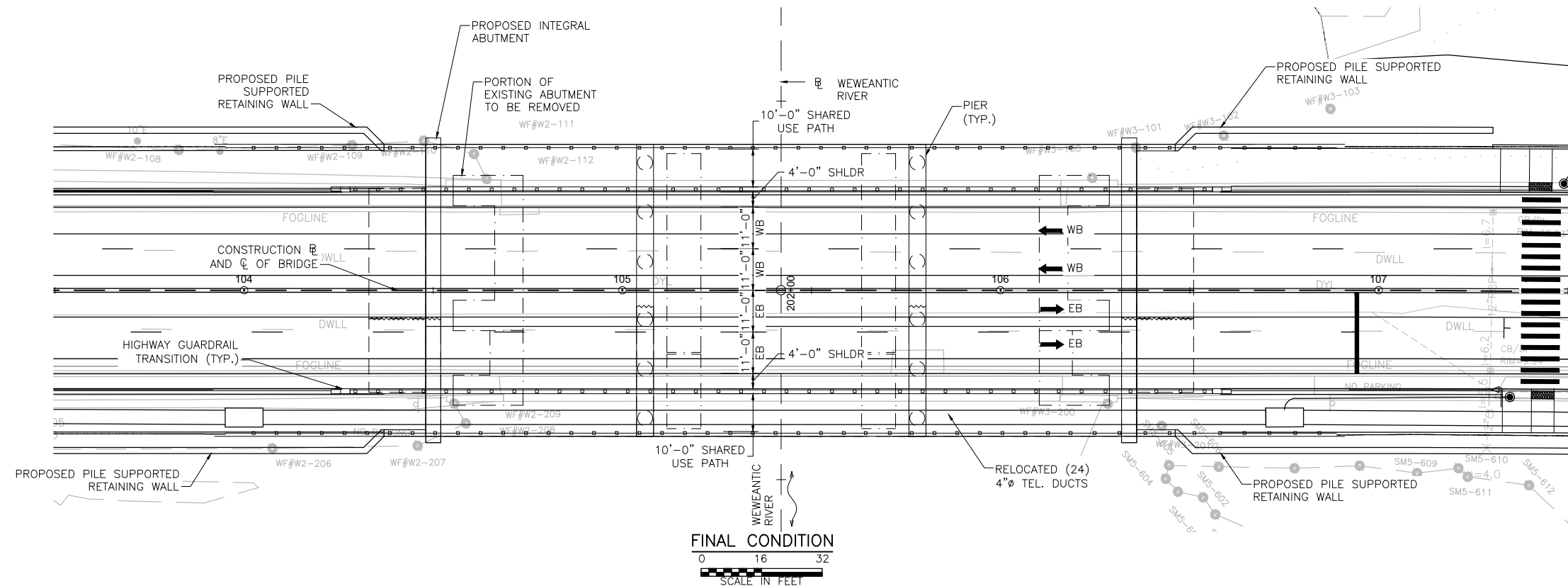
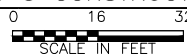


STAGE 2:

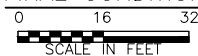
- 2.1 DEMOLISH NORTHERLY PORTION OF EXISTING SUPERSTRUCTURE.
- 2.2 INSTALL STAGE 2 PIER COFFERDAM AND TEMPORARY SHEETING.
- 2.3 REMOVE NORTHERLY PORTIONS OF THE EXISTING PIER AND ABUTMENTS TO SPECIFIED LIMITS.
- 2.4 CONSTRUCT NEW NORTHERLY PORTION OF PIER AND INTEGRAL ABUTMENTS.
- 2.5 REMOVE STAGE 2 PIER COFFERDAM AND TEMPORARY SHEETING.



STAGING 3 CONSTRUCTION PLAN



FINAL CONDITION



STAGE 3:

- 3.1 SHIFT TRAFFIC NORTHERLY MAINTAINING FOUR LANES OF TRAFFIC, TWO IN EACH DIRECTION.
- 3.2 CONSTRUCT SOUTHERLY SHARED USE PATH AND BRIDGE RAIL.

FINAL STAGE:

- REMOVE BARRIER AND INSTALL SPRAY APPLIED WATER PROOFING MEMBRANE AND HMA WEARING SURFACE.