STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

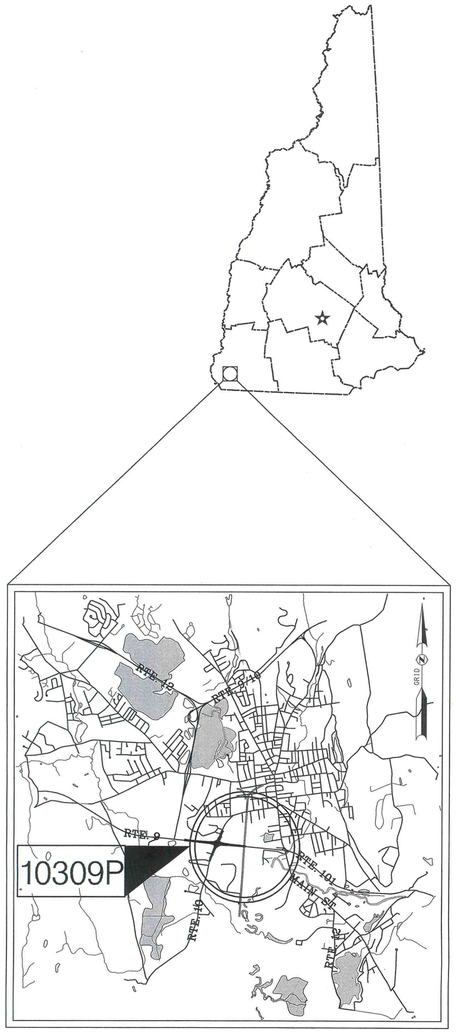
CONSTRUCTION PLANS

KEENE / SWANZEY

A000(458)
N.H. PROJECT NO. 10309P
MULTI-USE-TRAIL OVER NH ROUTE 12 & 101

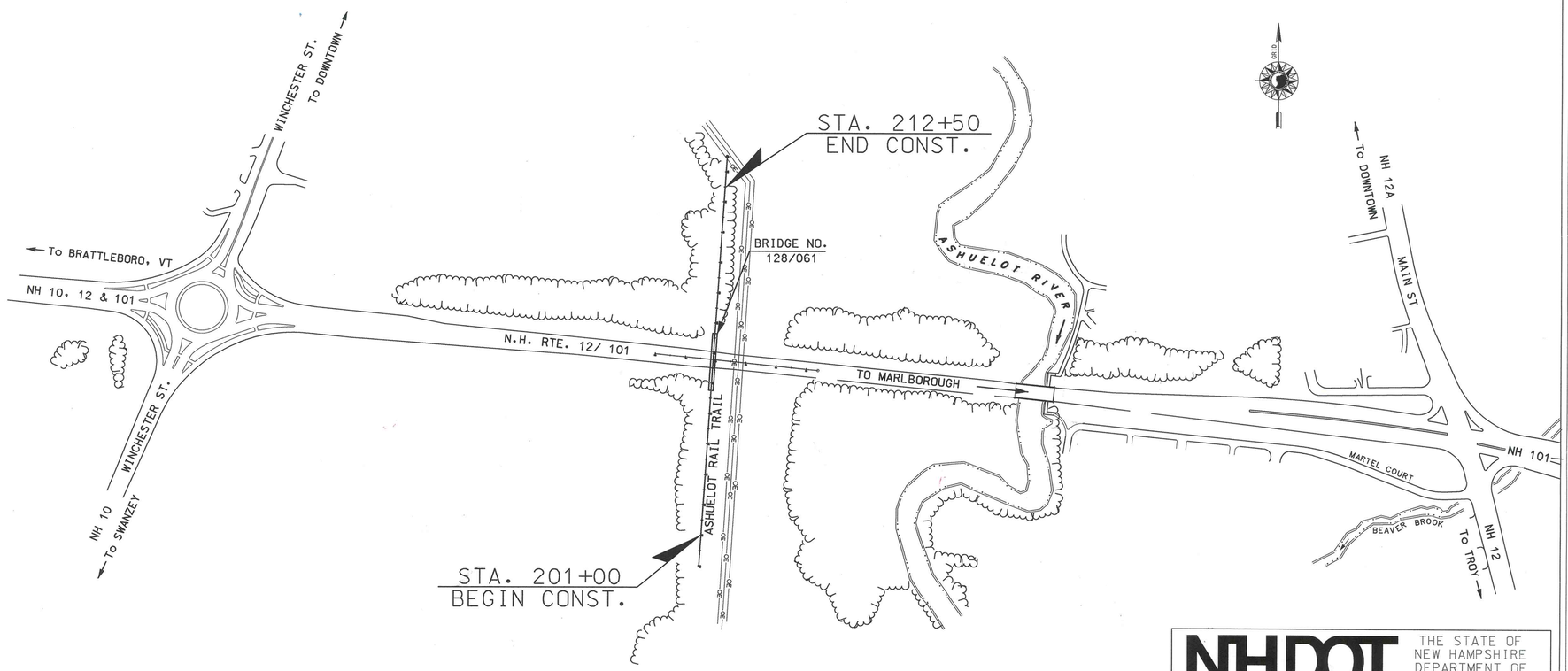
NH 12 / NH 101 DATA

AVERAGE DAILY TRAFFIC 20 12	23,000
AVERAGE DAILY TRAFFIC 20 32	28,000
PERCENT OF TRUCKS	6.6%
DESIGN SPEED	40 mph
LENGTH OF PROJECT	1150 feet



LOCATION MAP

1 ½ 0 1 2 mi.
GRAPHIC SCALE



AS-BUILT PLANS

DATE: 7/31/2017

TOWN OF KEENE - SWANZEY
COUNTY OF CHESHIRE
SCALE: 1" = 200'-0"

STATE OF NEW HAMPSHIRE
PETER E. STAMNAS
No. 8000
LICENSED
PROFESSIONAL ENGINEER
9/10/15

BRIDGE DESIGN
SUBSTRUCTURE
AND SITE WORK

NHDOT THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL: 9/11/15
DIRECTOR OF PROJECT DEVELOPMENT — DATE

APPROVED: 9/14/15
ASSISTANT COMMISSIONER AND CHIEF ENGINEER — DATE

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:
DIVISION ADMINISTRATOR — DATE

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
A000(458)	10309p	1	34

DRAWN BY GMC — DATE 08/2015
CHECKED BY JAS — DATE 08/2015

MORAN

Construction

Keene-Swanzey

P-7

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE PAGE
2	INDEX
3-4	STANDARD SYMBOLS
5	TYPICAL OF MULTI-USE TRAIL (MUT)
	BRIDGE PLANS
6-20	GENERAL PLANS
	CROSS SECTIONS
21-34	MULTI-USE TRAIL (MUT)

GENERAL NOTES

1. FOR STANDARD PLANS, SEE "STANDARD PLANS FOR ROAD AND BRIDGE CONSTRUCTION" DATED 2001 (A BOUND BOOK).
2. HIGH TENSION OVERHEAD TRANSMISSION LINES ARE LOCATED THROUGHOUT THE PROJECT WITH CROSSINGS AT VARIOUS LOCATIONS AND RUNNING ALONG THE ROAD THROUGHOUT THE PROJECT EVEN ON REGULAR POLES. THE CONTRACTOR IS ADVISED THAT EXTREME CAUTION WILL BE REQUIRED IN THE OPERATION OF EQUIPMENT, ESPECIALLY CRANES AND PILE DRIVING EQUIPMENT.
3. REMOVE TOPSOIL FOR ITS TOTAL DEPTH WITHIN THE LIMITS OF THE SLOPE LINES. UNLESS OTHERWISE DIRECTED, STOCKPILE TOPSOIL AND USE IT ON THIS PROJECT AS NEEDED UNDER SECTION 646.4, TURF ESTABLISHMENT WITH MULCH, TACKIFIERS AND HUMUS.
4. REMOVAL OF EXISTING CONCRETE PAVEMENT WILL BE PAID UNDER ITEM 203.2 - ROCK EXCAVATION. THE BITUMINOUS PAVEMENT ABOVE THE CONCRETE WILL NOT BE PAID UNDER ITEM 203.2.
5. MODIFY SUPERELEVATION ON EXISTING CURVES BY THE USE OF A LEVELING COURSE TO THE RATES INDICATED ON THE PLANS OR AS ORDERED.
6. EXISTING DELINEATORS AND WITNESS MARKERS THAT ARE REMOVED AND DETERMINED BY THE ENGINEER TO BE IN ACCEPTABLE CONDITION SHALL BE RESET (SUBSIDIARY). ADDITIONAL DELINEATORS AND WITNESS MARKERS ORDERED WILL BE PAID UNDER THE APPROPRIATE ITEMS OF THE CONTRACT.
7. NO EXISTING MONUMENTS, BOUNDS, OR BENCHMARKS SHALL BE DISTURBED WITHOUT FIRST MAKING PROVISIONS FOR RELOCATION.
8. PERFORM ALL WORK WITHIN THE EXISTING RIGHT-OF-WAY, UNLESS OTHERWISE SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER.
9. REMOVE UNPROTECTED PROJECT MARKERS (SUBSIDIARY).
10. SURVEY DATA FOR THIS PROJECT WAS COLLECTED BY SDR AND FIELD NOTES CAN BE FOUND IN FIELD BOOK 13219 & 13473. COORDINATES ARE NEW HAMPSHIRE STATE PLANE COORDINATES OF N.A.D. 2011 AND BEARINGS ARE GRID. ELEVATIONS ARE REFERENCED TO N.G.V.D. 1988.

THE FOLLOWING GENERAL NOTES WILL BE USED ON THIS PROJECT:

1	2	3				7	8		10		

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

SDR PROCESSED DATE
NEW DESIGN JAS DATE 9-2015
SHEET CHECKED JAT DATE 9-2015
AS BUILT DETAILS DATE

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

INDEX OF SHEETS AND GENERAL NOTES

SUBDIRECTORY	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
PRJPedBridge/Cutsheets	INDEX	10309p	2	34

GENERAL

EDGE OF PAVEMENT	PROPOSED ROADWAY	existing roadway	(pavement removed outside slope lines)
TRAVELED WAY			
DRIVEWAYS	(label surface type)		
BUILDINGS	(building to be removed)	(label house or type of building)	
FOUNDATION	(label type)		
LEACH FIELD	leach field		
BRIDGE CROSSINGS	STREAM	OVERPASS	
STEPS AND WALK	(label type)		
INTERMITTENT WATER COURSE			
SHORE LINE	river/stream	pond	(label name of water body)
POTENTIAL WET AREA SYMBOL			
BRUSH OR WOODS LINE			
TREES (PLANS)	(deciduous)	(coniferous)	(stump)
TREE OR STUMP (CROSS-SECTIONS)	(show station, circumference in feet & type)		
HEDGE	(label type)		
MONITORING WELL	mon W		
WELL	W		
FLAG POLE	fp		

ORIGINAL GROUND (TYPICALS)		
ROCK OUTCROP		
ROCK LINE (TYPICALS & SECTIONS ONLY)		
GUARDRAIL (label type)	existing: bgr, cgr	PROPOSED
JERSEY BARRIER		
CURB (LABEL TYPE)		
STONE WALL		
RETAINING WALL (LABEL TYPE)		(points toward retained ground)
FENCE (LABEL TYPE)		
SIGNS	(single post)	(double post)
GAS PUMP	gp	
FUEL TANK (ABOVE GROUND)	ft	(label size & type)
STORAGE TANK FILLER CAP	fc	
SEPTIC TANK	S	
GRAVE	gr	
MAILBOX	mb	
VENT PIPE	vp	
SATELLITE DISH ANTENNA	da	
PHONE	ph	
GROUND LIGHT/LAMP POST	gl	lp
BORING LOCATION	B	
TEST PIT	TP	
INTERSTATE NUMBERED HIGHWAY	293	
UNITED STATES NUMBERED HIGHWAY	3	
STATE NUMBERED HIGHWAY	102	

SHORELAND - WETLAND

WETLAND DESIGNATION AND TYPE	2 PUB2E
DELINEATED WETLAND	DW
ORDINARY HIGH WATER	OHW
TOP OF BANK	TOB
TOP OF BANK & ORDINARY HIGH WATER	TOBOHW
NORMAL HIGH WATER	NHW
WIDTH AT BANK FULL	WBF
PRIME WETLAND	PWET
PRIME WETLAND 100' BUFFER	PWET100
NON-JURISDICTIONAL DRAINAGE AREA	NJDA
COWARDIN DISTINCTION LINE	CDL
TIDAL BUFFER ZONE	TBZ
DEVELOPED TIDAL BUFFER ZONE	DTBZ
HIGHEST OBSERVABLE TIDE LINE	HOTL
MEAN HIGH WATER	MHW
MEAN LOW WATER	MLW
VERNAL POOL	VP
SPECIAL AQUATIC SITE	SAS
REFERENCE LINE	REF
WATER FRONT BUFFER	WB50
NATURAL WOODLAND BUFFER	NWB150
PROTECTED SHORELAND	PS250
INVASIVE SPECIES LABEL	I.S. I I.S. II
INVASIVE SPECIES	INV

FLOODPLAIN / FLOODWAY

500 YEAR FLOODPLAIN BOUNDARY	FP500
100 YEAR FLOODPLAIN BOUNDARY	FP100
FLOODWAY	FW

ENGINEERING

CONSTRUCTION BASELINE	30 31 32
PC, PT, POT (ON CONST BASELINE)	
PI (IN CONSTRUCTION BASELINES)	
INTERSECTION OR EQUATION OF TWO LINES	
ORIGINAL GROUND LINE (PROFILES AND CROSS-SECTIONS)	
PROFILE GRADE LINE (PROFILES AND CROSS-SECTIONS)	
CLEARING LINE	SLOPE LINE, CLEARING LINE
SLOPE LINE	
SLOPE LINE (FILL)	
SLOPE LINE (CUT)	
PROFILES AND CROSS SECTIONS:	
ORIGINAL GROUND ELEVATION (LEFT)	72.5
FINISHED GRADE ELEVATION (RIGHT)	79.14

SHEET 1 OF 2

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

STANDARD SYMBOLS

SUBDIRECTORY	REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
PRJPedBridge/Cutsheets	11-21-2014	stdsymb1_2	10309p	3	34

DRAINAGE

MANHOLE — (existing) — (PROPOSED)

CATCH BASIN — cb

DROP INLET — di

DRAINAGE PIPE (existing) — (label size & type)

DRAINAGE PIPE (PROPOSED)

UNDERDRAIN (existing) W/ FLUSHING BASIN — fb — (label size & type)

UNDERDRAIN (PROPOSED) W/ FLUSHING BASIN

show direction of flow

HEADER (existing & PROPOSED) — (with stone outlet protection)

END SECTION (existing & PROPOSED) — METAL or PLASTIC — RCP

OPEN DITCH (PROPOSED)

EROSION CONTROL/ STONE SLOPE PROTECTION

BOUNDARIES / RIGHT-OF-WAY

RIGHT-OF-WAY LINE — (label type)

RR RIGHT-OF-WAY LINE

PROPERTY LINE

PROPERTY LINE (COMMON OWNER) — Z

TOWN LINE — BOW / CONCORD

COUNTY LINE — COOS / GRAFTON

STATE LINE — MAINE / NEW HAMPSHIRE

NATIONAL FOREST

CONSERVATION LAND — LC

BENCH MARK / SURVEY DISK

BOUND — bnd — (PROPOSED)

STATE LINE/ TOWN LINE MONUMENT — S/L — T/L

NHDOT PROJECT MARKER

IRON PIPE OR PIN — ip

DRILL HOLE IN ROCK — dh

TAX MAP AND LOT NUMBER — 156 / 14 — 1642/341 — 6.80 Ac.±

PROPERTY PARCEL NUMBER — 12

HISTORIC PROPERTY — H

UTILITIES

	existing	PROPOSED
TELEPHONE POLE		
POWER POLE		
JOINT OCCUPANCY	(plot point at face not center of symbol)	
MISCELLANEOUS/UNKNOWN POLE		
GUY POLE OR PUSH BRACE		
LIGHT POLE		
LIGHT ON POWER POLE		
LIGHT ON JOINT POLE		

POLE STATUS:
REMOVE, LEAVE, PROPOSED, OR TEMPORARY AS APPLICABLE e.g.:

R — L — P+04 25.0' — T+04 25.0'

	existing	PROPOSED
RAILROAD	(label ownership)	
RAILROAD SIGN		
RAILROAD SIGNAL		
UTILITY JUNCTION BOX	jb	JB
OVERHEAD ELECTRIC	OE	OE
UNDERGROUND UTILITIES		
WATER (on existing lines label size, type and note if abandoned)	W	PW
SEWER	S	PS
TELEPHONE	T	PT
ELECTRIC	E	PE
GAS	G	PG
LIGHTING	L	PL
INTELLIGENT TRANSPORTATION SYSTEM	ITS	PITS
FIBER OPTIC	FO	PFO
WATER SHUT OFF	WSO	WSO
GAS SHUT OFF	GSO	GSO
HYDRANT	hyd	HYD
MANHOLES		
SEWER	S	MHS
TELEPHONE	T	MHT
ELECTRICAL	e	MHE
GAS	g	MHG
UNKNOWN	U	

TRAFFIC SIGNALS / ITS

	existing	PROPOSED
MAST ARM (existing)		30' MA (NOTE ANGLE FROM ℄)
OPTICOM RECEIVER		
OPTICOM STROBE		
TRAFFIC SIGNAL		
PEDESTAL WITH PEDESTRIAN SIGNAL HEADS AND PUSH BUTTON UNIT		
SIGNAL CONDUIT	C	PC
CONTROLLER CABINET	cc	CC
METER PEDESTAL	mp	MP
PULL BOX	pb	PB
LOOP DETECTOR (QUADRUPOLE)		(label size)
LOOP DETECTOR (RECTANGULAR)		(label size)
CAMERA POLE (CCTV)		
FIBER OPTIC DELINEATOR	fod	FOD
FIBER OPTIC SPLICE VAULT	SVF	SVF
ITS EQUIPMENT CABINET	its	ITS
VARIABLE SPEED LIMIT SIGN		
DYNAMIC MESSAGE SIGN		
ROAD AND WEATHER INFO SYSTEM		

CONSTRUCTION NOTES

CURB MARK NUMBER - BITUMINOUS	B-1
CURB MARK NUMBER - GRANITE	G-1
CLEARING AND GRUBBING AREA	A
DRAINAGE NOTE	1
EROSION CONTROL NOTE	A
FENCING NOTE	A
GUARDRAIL NOTE	1
ITS NOTE	1
LIGHTING NOTE	A
TRAFFIC SIGNAL NOTE	1

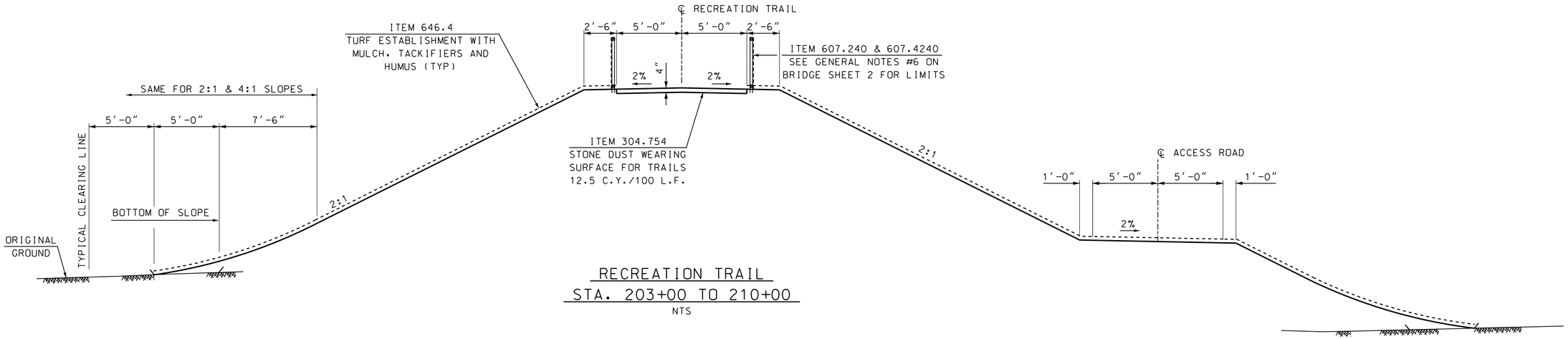
SHEET 2 OF 2

STATE OF NEW HAMPSHIRE

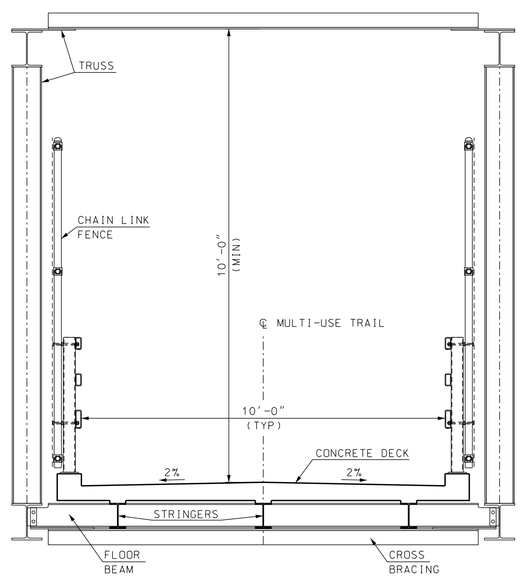
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

STANDARD SYMBOLS

SUBDIRECTORY	REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
PRJPedBridge/Cutsheets	11-21-2014	stdsymb1_2	10309p	4	34



RECREATION TRAIL
STA. 203+00 TO 210+00
NTS



CONCEPTUAL
STEEL BRIDGE TRUSS CROSS SECTION
NTS

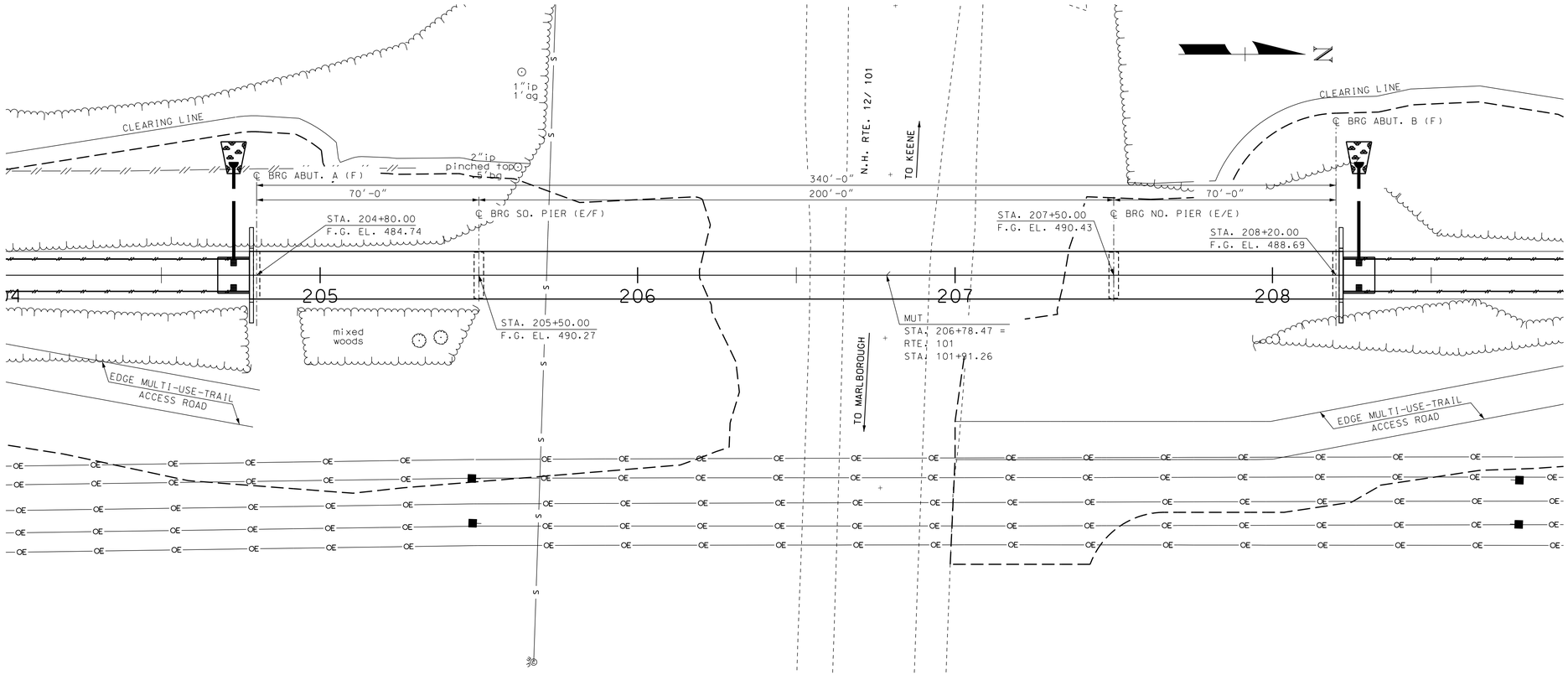
REVISIONS AFTER PROPOSAL			
NUMBER	DATE	STATION	DESCRIPTION
		STATION	

SDR PROCESSED		DATE
NEW DESIGN	JAS	DATE 9/2015
SHEET CHECKED	JAT	DATE 9/2015
AS BUILT DETAILS		DATE

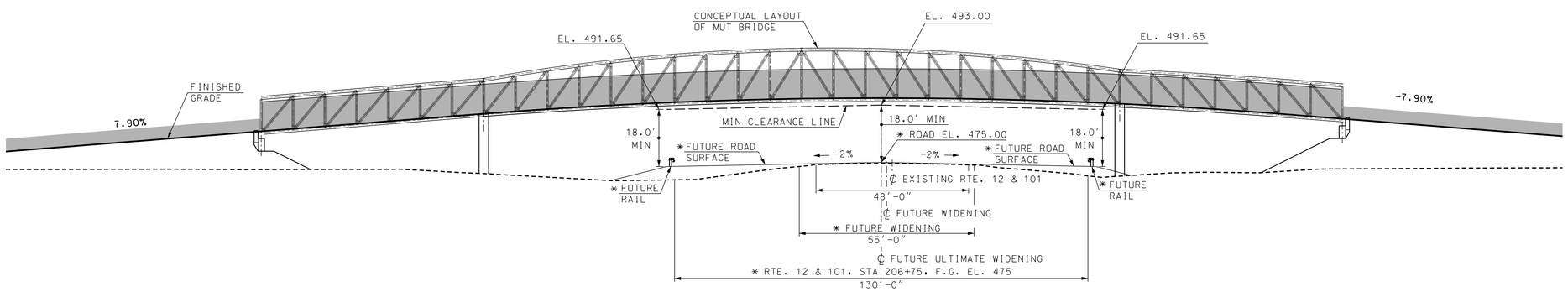
STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

RECREATION TRAIL TYPICALS

SUBDIRECTORY	.DGN LOCATOR	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
BRC\Details	10309pTypical	10309pTypical	10309p	5	34



PLAN



ELEVATION

* BY OTHERS IN A FUTURE CONTRACT

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY | BRIDGE NO. 128\061 | STATE PROJECT 10309p

LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

GENERAL PLAN AND ELEVATION

BRIDGE SHEET 1 OF 15

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	JAS	8/15	CHECKED	KFD	8/15
	DRAWN	JAS	8/15	CHECKED	KFD	8/15
	QUANTITIES	JAS	8/15	CHECKED	JER	8/15

ISSUE DATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
REV. DATE	----------	6	34

FILE NUMBER 130-1-2

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
BRC/BrSite	10309pGenplan	1"=20'-0"

DESIGN LOADS, MATERIALS AND SPECIFICATIONS

(1) DESIGN LOADING: SEE SPECIAL PROVISION

(2) DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN (LRFD)

(3) SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (2014) AS AMENDED

AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES (2009)

NHDOT 2010 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AS AMENDED

(4) FOUNDATION DATA: ABUTMENTS AND WINGS:
SPREAD FOOTING SUPPORTED ON STRUCTURAL FILL WITH A NOMINAL BEARING RESISTANCE OF 2.5 TSF IN COMBINATION WITH A RESISTANCE FACTOR OF 0.45.

PIER:
FOOTING SUPPORTED ON BEARING PILES

BEARING PILES:
HP14X73 WITH APPROVED PILE POINTS (AASHTO M270, ASTM A709 GRADE 50) MAX. FACTORED COMPRESSIVE AXIAL LOAD IS 261 KIPS (STRENGTH 3)

(5) REINFORCING STEEL: AASHTO M31 (ASTM A 615) GRADE 60
EPOXY COATED BARS:
ABUTMENT, WING, PIER STEMS, AND DECK
UNCOATED BARS
ALL FOOTING BARS EXCEPT BARS ENTERING INTO THE STEM. ("J" BARS EPOXY COATED)

(6) STRUCTURAL STEEL: AASHTO M270, GRADE 50 (ASTM A709, GRADE 50W), PAINTED AS NOTED IN PLANS & SPECIAL PROVISIONS

(7) CONCRETE: DECK
SEE SPECIAL PROVISION FOR ITEM 595 FOR DECK CONCRETE
4,000 PSI (AT 28 DAYS)
WINGWALLS, PIERS & ABUTMENTS
ITEM 520.12, CONCRETE CLASS A, ABOVE FOOTINGS (F)
3,000 PSI (AT 28 DAYS)
FOOTINGS
ITEM 520.213, CONCRETE CLASS B, FOOTINGS (ON SOIL) (F)
3,000 PSI (AT 28 DAYS)
CONCRETE DRAINAGE SLAB
ITEM 520.03, CONCRETE CLASS AA, APPROACH SLABS (QC/QA) (F)
4,000 PSI (AT 28 DAYS)

(9) SEISMIC: PEAK GROUND ACCELERATION (PGA) = 0.07
SITE CLASS = E
ZONE = 1

GENERAL NOTES

(1) THE CONTRACTOR SHALL CONTACT DIG SAFE TO SURVEY AND TAG ALL UNDERGROUND UTILITIES LOCATIONS NEAR THE BRIDGE.

(2) THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO ENSURE THAT DEBRIS DOES NOT FALL ONTO THE ROADWAY BELOW THE STRUCTURE. ALL COSTS INCLUDING ERECTON, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURES OR OTHER SUCH APPROVED METHODS, SHALL BE SUBSIDIARY TO THE APPROPRIATE ITEMS OF WORK BEING PERFORMED.

(3) ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED ¾", UNLESS OTHERWISE NOTED.

(4) SHEAR KEYS SHALL BE 3" HIGH BY ONE-THIRD THE WIDTH OF THE WALL, CENTERED.

(5) ALL EXISTING BRONZE DISCS REPRESENTING STATE BENCHMARKS OR SURVEY TRIANGULATION POINTS MUST NOT BE DISTURBED. WHEN THE WORK CALLED FOR INVOLVES DISTURBING A BRONZE DISC THE CONTRACTOR SHALL NOTIFY THE ENGINEER SUFFICIENTLY IN ADVANCE OF THE WORK TO ALLOW THE STATE TO TEMPORARLLY RELOCATE THE AFFECTED MARKER.

(6) ITEM 538.2, BARRIER MEMBRANE, PEEL AND STICK - VERTICAL SURFACES (F), 2' WIDE WITH PROTECTION BOARD (SUBSIDIARY), SHALL BE PLACED CENTERED OVER ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS.

(7) ITEM 607.240, CHAIN LINK FENCE WITH ALUMINUM COATED STEEL FABRIC, 4 FT HIGH, SHALL RUN FROM ABUTMENT "A" 140' SOUTH ON THE EAST AND WEST SIDES & FROM ABUTMENT "B" NORTH 220' ON THE WEST SIDE & 160' ON THE EAST SIDE.

(8) ITEM 201.1, CLEARING AND GRUBBING
0.51 Ac SE QUADRANT, 0.25 Ac SW QUADRANT
0.53 Ac NE QUADRANT, 0.31 Ac NW QUADRANT

(9) FOR SURVEY LAYOUT SEE BRIDGE SHEET 3.

(10) FOR BORING NOTES SEE BRIDGE SHEET 6.

REINFORCEMENT NOTES

(1) REINFORCEMENT IN THE FOOTING AND APPROACH SLABS SHALL HAVE 3" CLEAR COVER. ALL OTHER REINFORCEMENT SHALL HAVE 2½" CLEAR COVER, UNLESS OTHERWISE NOTED.

(2) PLACE REINFORCING STEEL TO AVOID WEEPERS, RAIL POST ANCHOR ASSEMBLIES, PILES AND EXPANSION JOINT STEEL.

(3) REINFORCING IN TOP OF PIER AND ABUTMENT CAP BEAMS SHALL BE ADJUSTED TO CLEAR ANCHOR BOLTS.

(4) ANY EPOXY COATED REBARS CUT TO FIT SHALL BE TOUCHED UP WITH AN APPROVED EPOXY COATING MATERIAL. ALL COSTS SHALL BE INCLUDED IN ITEM 544.2.

(5) REINFORCING LEGEND:

ALT	= ALTERNATE	BOT	= BOTTOM	BRG	= BEARING
CLR	= CLEAR	DOW	= DOWEL	EQ	= EQUAL
FS	= FAR SIDE	MAX	= MAXIMUM	MC	= MECHANICAL CONNECTOR
MID	= MIDDLE	MIN	= MINIMUM	NS	= NEAR SIDE
SECT	= SECTION	SP	= SPACE	SPL	= SPLICE
SYM	= SYMMETRICAL	TYP	= TYPICAL	E	= EPOXY COATED
SS	= STAINLESS STEEL				

PIER NOTES

(1) THE MAXIMUM FACTORED AXIAL COMPRESSIVE PILE LOAD IS 276.3 KIPS (STRENGTH 3 LIMIT STATE).

(2) THE PILES SHALL BE DRIVEN IN ACCORDANCE WITH SECTION 510 TO A NOMINAL GEOTECHNICAL AXIAL RESISTANCE EQUAL TO THE MAXIMUM FACTORED AXIAL LOAD DIVIDED BY A RESISTANCE FACTOR OF 0.65. THE DEPARTMENT WILL CONDUCT PILE DYNAMIC ANALYZER (PDA) TESTS IN ACCORDANCE WITH SECTION 510 TO VERIFY THE NOMINAL GEOTECHNICAL AXIAL RESISTANCE AND THE ACCEPTABILITY OF THE CONTRACTOR'S DRIVING SYSTEM.

(3) STEEL H-PILES SHALL CONFORM TO 510.2.1.2. AND SHALL BE HP14X73.

(4) CAST STEEL DRIVING POINTS SHALL CONFORM TO 510.2.1.3.

(5) THE ESTIMATED PILE LENGTHS ARE 170 FEET FOR THE SOUTH PIER AND 190 FEET FOR THE NORTH PIER.

(6) PAID SPLICES PER PILE WITHIN THE ESTIMATED LENGTH SHALL BE TWO FOR THE SOUTH PIER AND THREE FOR THE NORTH PIER. ADDITIONAL SPLICES WITHIN THE ESTIMATED LENGTH WILL NOT BE PAID UNLESS ORDERED. SPLICES FOR PILES WITH AN INSTALLED LENGTH THAT EXCEEDS THE ESTIMATED LENGTH WILL BE PAID. APPROVED SPLICES WILL BE PAID UNDER ITEM 510.9.

(7) PILE LAYOUT DIMENSIONS ARE GIVEN AT THE BOTTOM OF FOOTING.

(8) THE LOCATION AND ALIGNMENT TOLERANCES IN SECTION 510.3.6.4 FOR PILES CAPPED BELOW GRADE SHALL APPLY. ADDITIONALLY, THE OUTER EDGE OF THE SHEAR STUDS SHALL BE A MINIMUM OF 4 INCHES FROM THE EDGE OF THE PILE CAP. ANY INCREASE IN THE SIZE OF THE CAP TO MEET THESE REQUIREMENTS SHALL BE AT THE EXPENSE OF THE CONTRACTOR.

(9) THE FOOTING REINFORCING STEEL SHALL BE PLACED TO CLEAR THE PILES.

(10) VIBRATORY HAMMERS WILL NOT BE PERMITTED FOR ANY PORTION OF THE PILE INSTALLATION AT THE SOUTH PIER.

(11) THE CONTRACTOR IS ADVISED THAT INTERMITTENT STOPPAGE OF THE PILE DRIVING AT THE SOUTH PIER WILL BE REQUIRED TO ALLOW MONITORING OF THE SETTLEMENT PLATFORM (ITEM 210.1) LOCATED ABOVE THE EXISTING SEWER. ALL COSTS ASSOCIATED WITH THE INTERMITTENT STOPPAGE OF THE PILE DRIVING SHALL BE SUBSIDIARY TO ITEM 510.61.

(12) ALL SHEAR CONNECTORS SHALL BE FIELD WELDED TO THE H-PILE FLANGES IN ACCORDANCE WITH SECTION 547. WITH AUTOMATICALLY-TIMED STUD WELDING EQUIPMENT.

FOUNDATION PRE-LOAD NOTES

(1) PHASE 1 PRELOAD AND WAITING PERIOD REQUIREMENTS:

(a) THIS PHASE INCLUDES THE EMBANKMENT CONSTRUCTION AND WAITING PERIOD THAT IS REQUIRED PRIOR TO PLACING THE MULTIUSE TRAIL SURFACE TREATMENT AND PRIOR TO THE ABUTMENT CONSTRUCTION.

(b) CONSTRUCT THE MULTIUSE TRAIL EMBANKMENT FROM STA. 203+00 TO THE PROPOSED SOUTH ABUTMENT END SLOPE, AND FROM THE NORTH ABUTMENT END SLOPE TO STA. 210+50.

(c) TRANSVERSELY, CONSTRUCT THE EMBANKMENT OUT TO THE FULL SIDE SLOPE DESIGN CONFIGURATION.

(d) VERTICALLY, CONSTRUCT THE EMBANKMENT UP TO THE PROPOSED FINISHED GRADE.

(e) LONGITUDINALLY IN THE AREA OF THE ABUTMENT END SLOPE, CONSTRUCT THE EMBANKMENT WITH THE CONFIGURATION INDICATED ON BRIDGE SHEET NO. 3.

(f) THE PHASE 1 PRELOAD SHALL BE LEFT IN PLACE A MINIMUM OF 45 DAYS AFTER IT HAS BEEN CONSTRUCTED TO THE FULL CONFIGURATION DESCRIBED ABOVE.

(g) MONITORING OF THE PRELOAD SETTLEMENT AT EACH ABUTMENT SHALL BE PROVIDED THROUGH ITEM 210.1 (SETTLEMENT PLATFORMS).

(2) PHASE 2 WAITING PERIOD REQUIREMENTS:

(a) THIS PHASE INCLUDES THE WORK THAT CAN BE IMPLEMENTED AFTER COMPLETION OF THE 45 DAY PHASE 1 WAITING PERIOD.

(b) OUTSIDE THE ABUTMENT CONSTRUCTION AREA, THE EMBANKMENT CONSTRUCTED UNDER PHASE 1 CAN BE GRADED TO THE FINAL CONFIGURATION AND THE FINAL MULTIUSE TRAIL SURFACE TREATMENT CONSTRUCTED.

(c) THE PRELOAD EMBANKMENT IN THE AREA OF THE ABUTMENTS CAN BE EXCAVATED (ITEM 203.7) AND THE ABUTMENT CONSTRUCTED IN A STANDARD MANNER.

(d) AFTER THE ABUTMENT AND WINGWALLS HAVE BEEN CONSTRUCTED AND BACKFILLED UP TO THE BRIDGE SEAT ELEVATION, A MINIMUM 30 DAY WAITING PERIOD SHALL BE REQUIRED PRIOR TO ERECTING THE BRIDGE TRUSS. BOTH ABUTMENTS SHALL BE MONITORED FOR SETTLEMENT DURING THIS TIME. THE BRIDGE SEAT ELEVATION SHALL BE SURVEYED AT THE COMPLETION OF THIS WAITING PERIOD TO DETERMINE IF ANY SHIM PLATES ARE NEEDED TO ACHIEVE THE BRIDGE SEAT DESIGN GRADE. ALL COSTS ASSOCIATED WITH SETTLEMENT MONITORING OF THE ABUTMENTS SHALL BE SUBSIDIARY TO ITEM 595. SHIM PLATES, IF REQUIRED SHALL BE PAID AS EXTRA WORK THROUGH SECTION 109.04.

FOUNDATION NOTES

(1) THE EXCAVATION TO FINAL GRADE AND THE CONTROL OF WATER SHALL BE CONDUCTED IN ACCORDANCE WITH SECTIONS 503 AND 504, AND IN A MANNER THAT PREVENTS DISTURBANCE OF THE FOUNDATION SUPPORT MATERIALS. PUMPING EQUIPMENT SHALL BE PROPERLY FILTERED TO PREVENT LOSS OF FINES. ANY DISTURBED AREAS SHALL BE OVER-EXCAVATED AND REPLACED WITH ITEM 508 AT THE CONTRACTOR'S EXPENSE. SUMP AREAS SHALL BE LOCATED OUTSIDE A 1H:2V SUPPORT LIMIT BELOW THE SUBSTRUCTURE FOOTINGS.

(2) THE SUBSTRUCTURE FOOTINGS SHALL BE FOUNDED ON THE ITEM 508 LAYER INDICATED ON THE PLANS. THE CONTRACTOR MAY SUBSTITUTE UP TO 12 INCHES OF CLEAN STONE STRUCTURAL FILL FOR ITEM 508 IN ACCORDANCE WITH 508.2.1.3 AT NO COST TO THE DEPARTMENT.

(3) PROTRUDING COBBLES AND BOULDERS ENCOUNTERED AT THE FINAL EXCAVATION LEVEL SHOULD BE EITHER REMOVED AND REPLACED WITH ITEM 508 OR SPLIT TO PROVIDE A LEVEL SURFACE.

(4) DEWATERING SHALL BE CONTINUOUS UNTIL THE STRUCTURE IS BACKFILLED TO THE ELEVATION OF THE SURROUNDING WATER TABLE.

(5) THE CONTRACTOR'S MEANS AND METHODS FOR DEWATERING AND WATER DISPOSAL SHALL CONFORM TO THE PROJECT ENVIRONMENTAL REQUIREMENTS.

STRUCTURAL STEEL AND SUPERSTRUCTURE NOTES

(1) ALL STRUCTURAL STEEL SHALL BE PAID UNDER ITEM 595 IN COMPLIANCE WITH ITEM 550.1 THIS INCLUDES ALL TRUSS MEMBERS, GUSSET PLATES, CONNECTION PLATES, SPLICE PLATES, STIFFENERS AND FASTENERS, ETC.

(2) THE NHDOT WILL INSPECT THE SHOP FABRICATION OF THE STRUCTURAL STEEL.

(3) NOTCH TOUGHNESS REQUIREMENTS SHALL BE IN ACCORDANCE TO NHDOT STANDARD SPECIFICATIONS SECTION 550.2.3.

(4) ALL BOLTED CONNECTIONS SHALL BE SLIP-CRITICAL (CLASS-B) MADE WITH ⅞" Φ HIGH STRENGTH BOLTS IN 15/16" Φ HOLES. ALL FASTENERS SHALL CONFORM TO REQUIREMENTS FOR AASHTO M164 (ASTM A325) TYPE 3. (IN PAINTED AREAS, BOLTS SHALL BE TYPE 1 GALVANIZED)

(5) HIGH STRENGTH BOLTS SHALL BE INSTALLED WITH DIRECT TENSION INDICATORS.

(6) BRIDGE TRUSS SHALL BE CAMBERED FOR VERTICAL CURVATURE AND FOR FULL DEAD LOAD DEFLECTION.

(7) ALL WELDS SHALL HAVE CORROSION RESISTANCE AND WEATHERING APPEARANCE AS SPECIFIED FOR WEATHERING STRUCTURAL STEEL.

(8) THE STRUCTURAL STEEL FABRICATOR SHALL ARRANGE FOR NON-DESTRUCTIVE TESTING OF THE WELDS. ALL COSTS TO BE INCLUDED IN ITEM 595.

(9) SHOP DRAWINGS SHALL INDICATE THE METHOD AND SEQUENCE TO BE FOLLOWED IN WELDING THE COMPONENTS.

(10) GRAVITY AXES OF THE MEMBERS SHALL INTERSECT AS NEARLY AS PRACTICABLE AT THE CENTERLINE OF THE MEMBERS.

(11) LOCATION OF WELDED SHOP SPLICES SHALL BE APPROVED BY THE BUREAU OF BRIDGE DESIGN.

(12) HOLES FOR FIELD SPLICES SHALL BE DRILLED IN THE SHOP WHILE MEMBERS ARE ASSEMBLED TO FINAL CONFIGURATION.

(13) ANY SHOP OR FIELD WELDING OF ATTACHMENTS TO ANY PORTION OF THE TRUSS FOR CONSTRUCTION PURPOSES WILL NOT BE PERMITTED, UNLESS APPROVED BY THE BUREAU OF BRIDGE DESIGN.

(14) THE CONTRACTOR SHALL SUBMIT FOR APPROVAL, A HANDLING AND ERECTION PROCEDURE TO THE ENGINEER PRIOR TO HANDLING THE STRUCTURAL STEEL IN ACCORDANCE WITH SECTIONS 550.3.14 AND 550.3.15. THE SUBMITTAL SHOULD CONTAIN THE NUMBER & LOCATION OF LIFTING POINTS ALONG WITH SKETCHES, CALCULATIONS AND A NARRATIVE. LATERAL BUCKLING OF THE CONTROLLING LIFT SHOULD BE CHECKED.

(15) STEEL ERECTION SHALL NOT BE PERMITTED UNTIL THE ABUTMENTS HAVE BEEN BACKFILLED TO THE LEVEL OF THE BRIDGE SEATS.

(16) ALL SHEAR CONNECTORS SHALL BE FIELD WELDED TO THE TOP FLANGES WITH AUTOMATICALLY TIMED STUD WELDING EQUIPMENT AS REQUIRED BY THE CONTRACTOR'S/FABRICATOR'S DESIGN.

(17) ALL WELDING AND FABRICATION SHALL BE PERFORMED IN CONFORMANCE WITH NHDOT STANDARD SPECIFICATION SECTION 550.

(18) STRUCTURAL STEEL BELOW THE DECK (INCLUDING BRIDGE SHOES) SHALL BE PAINTED FROM THE END OF THE BRIDGE TO 3'-0" BEYOND THE CENTER OF BEARING, EXCEPT THAT STEEL IN WHICH CONCRETE WILL BE CAST AGAINST. THESE AREAS SHALL RECEIVE A LIGHT COAT OF RUST PROTECTIVE PRIMER.

SUPERSTRUCTURE NOTES

(1) ITEM 595, SHALL INCLUDE ALL COSTS OF THE DESIGN, DRAWINGS, FABRICATION, DELIVERY AND ERECTION OF PREFABRICATED PEDESTRIAN BRIDGE SUPERSTRUCTURE, AND ANY INCIDENTALS NECESSARY TO FURNISH THE PRODUCT COMPLETE IN PLACE, INCLUDING BEARINGS AND ANCHOR BOLTS. DETAILED SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL SHOWING MEMBER SIZE AND LOCATION AND BEARING DETAILS, AND SHALL INCLUDE DESIGN CALCULATIONS. DRAWINGS AND CALCULATIONS SHALL BE PREPARED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NH.

(2) THE BRIDGE SECTION SHOWN IN THE PLANS IS SCHEMATIC FOR MEMBER TYPES AND SIZES, ALL DIMENSIONS SHOWN IN THE PLANS SHALL BE USED IN THE FINAL PRODUCT UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER. ALL WORK SHALL COMPLY WITH THE SPECIAL PROVISIONS FOR ITEM 595, PREFABRICATED PEDESTRIAN BRIDGE SUPERSTRUCTURE. SEE SPECIAL PROVISIONS FOR STRUCTURE REQUIREMENTS.

(3) ABUTMENTS HAVE BEEN DESIGNED FOR A SUPERSTRUCTURE VERTICAL DEAD LOAD REACTION OF 48 KIPS. IF ACTUAL SERVICE REACTIONS EXCEED THIS VALUE, A DESIGN CHECK AND REDESIGN OF THE ABUTMENTS SHALL BE INCLUDED WITH THE SHOP PLAN SUBMISSION.

PIER NOTES

(1) THE CONTRACTOR IS REQUIRED TO POUR ALL PIER CONCRETE IN THE DRY.

(2) COAT ALL SURFACES OF THE PIER STEM, INCLUDING THE BEARING SEAT, WITH ITEM 534.3, WATER REPELLENT (SILANE-SILOXANE).

(3) ALL ANCHOR BOLTS AT THE PIERS SHALL BE CAST-IN-PLACE OR CORED DRILLED, USING A TEMPLATE. ROCK DRILLING IS NOT ALLOWED.

(3) PIERS HAVE BEEN DESIGNED FOR A SUPERSTRUCTURE VERTICAL DEAD LOAD REACTION OF 186 KIPS. IF ACTUAL SERVICE REACTIONS EXCEED THIS VALUE, A DESIGN CHECK AND REDESIGN OF THE PIERS SHALL BE INCLUDED WITH THE SHOP PLAN SUBMISSION.

ABUTMENT AND WINGWALL NOTES

(1) COAT ALL SURFACES OF THE ABUTMENTS AND WINGS STEMS, INCLUDING THE BEARING SEAT, WITH ITEM 534.3, WATER REPELLENT (SILANE-SILOXANE).

(2) ALL ANCHOR BOLTS AT THE ABUTMENT SHALL BE CAST-IN-PLACE OR CORED DRILLED, USING A TEMPLATE. ROCK DRILLING IS NOT ALLOWED.

(3) ANCHOR BOLTS MUST BE INSIDE REINFORCING CAGE.

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY | BRIDGE NO. 128\061 | STATE PROJECT 10309p

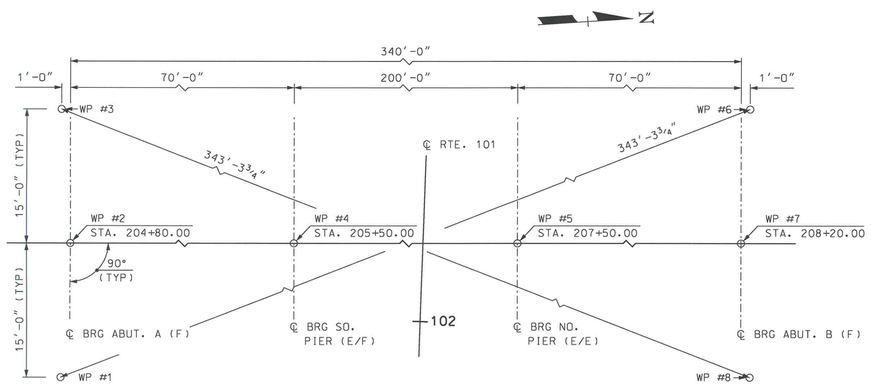
LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

BRIDGE CONSTRUCTION NOTES

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	JAS	8/15	CHECKED	KFD	8/15
	DRAWN	JAS	8/15	CHECKED	KFD	8/15
	QUANTITIES	JAS	8/15	CHECKED	JER	8/15
	ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.	
	REV. DATE		----------		7	

BRIDGE SHEET 2 OF 15
FILE NUMBER 130-1-2
TOTAL SHEETS 34

.DGN LOCATOR	SHEET SCALE
10309p notes	---



SURVEY LAYOUT

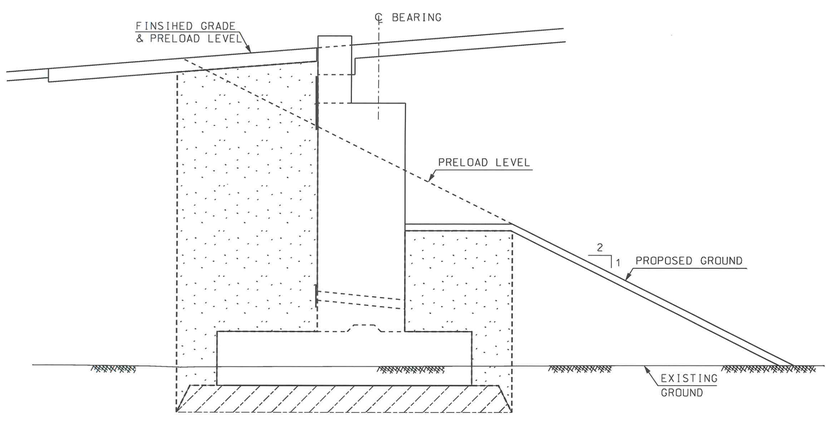
SCALE 1/8" = 1'-0"

SURVEY LAYOUT WORKING POINT COORDINATES		
WP #	NORTHING	EASTING
1	154236.9965	818702.5643
2	154238.9757	818687.6619
3	154238.9593	818672.6286
4	154308.8258	818692.2418
5	154508.3972	818705.3272
6	154580.2265	818695.0047
7	154578.2472	818709.9072
8	154578.2637	818724.9404

SUMMARY OF QUANTITIES

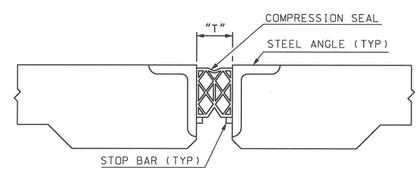
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	
201.1	CLEARING AND GRUBBING (F)	1.6	A	
201.881	INVASIVE SPECIES CONTROL TYPE I	~~768~~	SY	910
201.882	INVASIVE SPECIES CONTROL TYPE II	~~111~~	SY	132
203.1	COMMON EXCAVATION	~~786~~	CY	2,213
203.6	EMBANKMENT-IN-PLACE (F)	~~9284~~	CY	10,711
203.7	REHANDLING SURCHARGE MATERIAL	292	CY	
203.71	REHANDLING EXCAVATED MATERIAL	165	CY	
206.19	COMMON STRUCTURE EXCAVATION EXPLORATORY	~~60~~	CY	0
209.201	GRANULAR BACKFILL (BRIDGE) (F)	231	CY	
210.1	SETTLEMENT PLATFORMS	3	EA	
304.754	4" STONE DUST WEARING SURFACE FOR TRAILS	~~97~~	CY	98
504.1	COMMON BRIDGE EXCAVATION (F)	170	CY	
508	STRUCTURAL FILL	~~52~~	CY	49
510.1	PILE DRIVING EQUIPMENT	1	UNIT	
510.61	FURNISHING AND DRIVING STEEL BEARING PILES	~~157,880~~	LB	152,307
510.65	DRIVING-POINTS FOR STEEL BEARING PILES	12	EA	
510.9	PILE SPLICES	30	EA	
520.03	CONCRETE CLASS AA, APPROACH SLABS (F)	5	CY	
520.12	CONCRETE CLASS A, ABOVE FOOTINGS (F)	129	CY	
520.213	CONCRETE CLASS B, FOOTING (ON SOIL) (F)	77	CY	
534.3	WATER REPELLENT (SILANE-SILOXANE)	16	GAL	
538.2	BARRIER MEMBRANE, PEEL AND STICK - VERTICAL SURFACES (F)	11	SY	
541.5	PVC WATERSTOPS, NH TYPE 5 (F)	30	LF	
544	REINFORCING STEEL (F)	8,915	LB	
544.2	REINFORCING STEEL, EPOXY COATED (F)	17,218	LB	
544.7	SYNTHETIC FIBER REINFORCEMENT (F)	35	LB	
547	SHEAR CONNECTORS (F)	144	EA	
562.1	SILICONE JOINT SEALANT (F)	40	LF	
585.3	STONE FILL, CLASS C	~~4~~	CY	5
593.421	GEOTEXTILE: PERMANENT CONTROL CLASS 2, NON-WOVEN	~~20~~	SY	23
595	PREFABRICATED PEDESTRIAN BRIDGE SUPERSTRUCTURE	1	UNIT	
603.36112	12" ALUMINIZED STEEL END SECTION	2	EA	
603.44012	12" CORR. POLYETHYLENE PIPE FOR SLOPE DRAINAGE	80	LF	
604.242	DROP INLETS TYPE D-B	4	U	
607.240	CHAIN LINK FENCE WITH ALUMINUM COATED STEEL FABRIC, 4 FT HIGH	~~660~~	LF	656
607.4240	POST ASSEMBLIES FOR CHAIN LINK FENCE, 4 FT HIGH	8	EA	
618.61	UNIFORMED OFFICERS WITH VEHICLE	*	$	854.70
618.7	FLAGGERS	~~2500~~	HR	35
619.1	MAINTENANCE OF TRAFFIC	1	UNIT	
619.25	PORTABLE CHANGEABLE MESSAGE SIGN	2	UNIT	
645.512	COMPOST SOCK FOR PERIMETER BERM	~~1700~~	LF	1958
645.531	SILT FENCE	~~1700~~	LF	1416
645.7	STORM WATER POLLUTION PREVENTION PLAN	1	UNIT	
645.71	MONITORING SWPPP AND EROSION AND SEDIMENT CONTROLS	~~100~~	HR	83.5
646.4	TURF ESTABLISHMENT WITH MULCH, TACKIFIERS AND HUMUS	~~1.6~~	A	1.57
670.42	CONCRETE FILLED BOLLARD	~~4~~	UNIT	0
692	MOBILIZATION	1	UNIT	
697.41	CRITICAL PATH METHOD (CPM) ELECTRONIC SCHEDULE	1	UNIT	
698.14	FIELD OFFICE TYPE D	~~12~~	MON	0
699	MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL	*	$	8,126.05
1010.15	FUEL ADJUSTMENT	*	$	
	.01 COLLAPSIBLE STEEL BOLLARDS	*	$	3,146.55
	.02 CONCRETE DECK CRACK SEALER	*	$	963.23
	.80 STEEL PILE CUT-OFF	*	$	2718.64

* NOT A BID ITEM



PRELOAD SECTION

SCALE 3/8" = 1'-0"



EXPANSION JOINT DETAIL

SCALE: 2" = 1'-0"

EXPANSION JOINT NOTES

(1) PROVISIONS SHALL BE MADE IN THE DESIGN TO RESIST THERMAL STRESSES INDUCED, OR MEANS SHALL BE PROVIDED TO ACCOMMODATE MOVEMENT CAUSED, BY CHANGES IN TEMPERATURE.

(2) THE TYPE OF EXPANSION JOINT SHALL BE SELETED, DESIGNED, FABRICATED, AND INSTALLED BY THE CONTRACTOR AND BE IN ACCORDANCE WITH PLANS AND SPECIFICATIONS. ALL COSTS SHALL BE INCLUDED IN ITEM 595.

(3) ALL EXPANSION JOINT STEEL SHALL BE AASHTO M270 GRADE 50 (ASTM A709, GRADE 50) GALVANIZED, EXCEPT AS OTHERWISE INDICATED OR ALLOWED.

(4) THE TOP OF THE EXPANSION JOINT STEEL SHALL NOT PROJECT ABOVE THE FINAL PROFILE OF THE BRIDGE DECK. ADEQUATE PROVISIONS SHALL BE MADE FOR TREATMENT OF THE BRUSH CURBS AT THE EXPANSION JOINT.

AS BUILT PLANS

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY | BRIDGE NO. 128\061 | STATE PROJECT 10309p

LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

QUANTITY BOX AND SURVEY LAYOUT

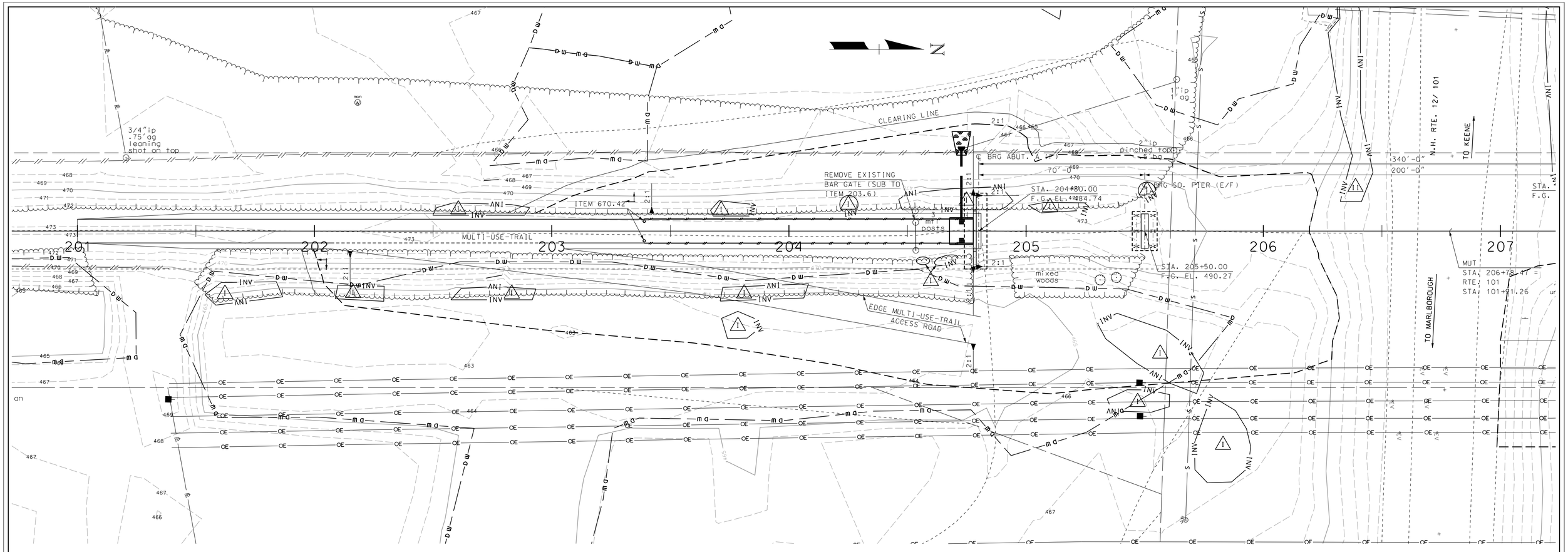
REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	JAS	8/15	CHECKED	KFD	8/15
	DRAWN	JAS	8/15	CHECKED	KFD	8/15
	QUANTITIES	JAS	8/15	CHECKED	JER	8/15
	ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.	
	REV. DATE		----------		8	

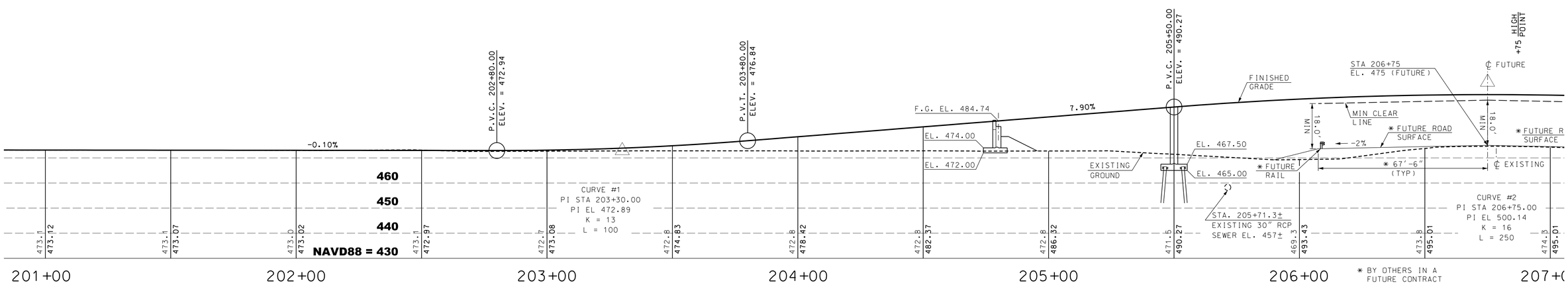
BRIDGE SHEET 3 OF 15

FILE NUMBER 130-1-2

TOTAL SHEETS 34

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
BRC/Details	10309p notes	---





PROFILE OF MULTI USE TRAIL BRIDGE

SCALE = 1" = 20'-0"

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY | BRIDGE NO. 128\061 | STATE PROJECT 10309p

LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

SITE PLAN (SHEET 1 OF 2)

BRIDGE SHEET 4 OF 15

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	JAS	8/15	CHECKED	KFD	8/15
	DRAWN	GMC	8/15	CHECKED	KFD	8/15
	QUANTITIES	JAS	8/15	CHECKED	JER	8/15

FILE NUMBER 130-1-2

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE	ISSUE DATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
BRC/BrSite	10309pSite	1"=20'-0"	REV. DATE	----------	9	34

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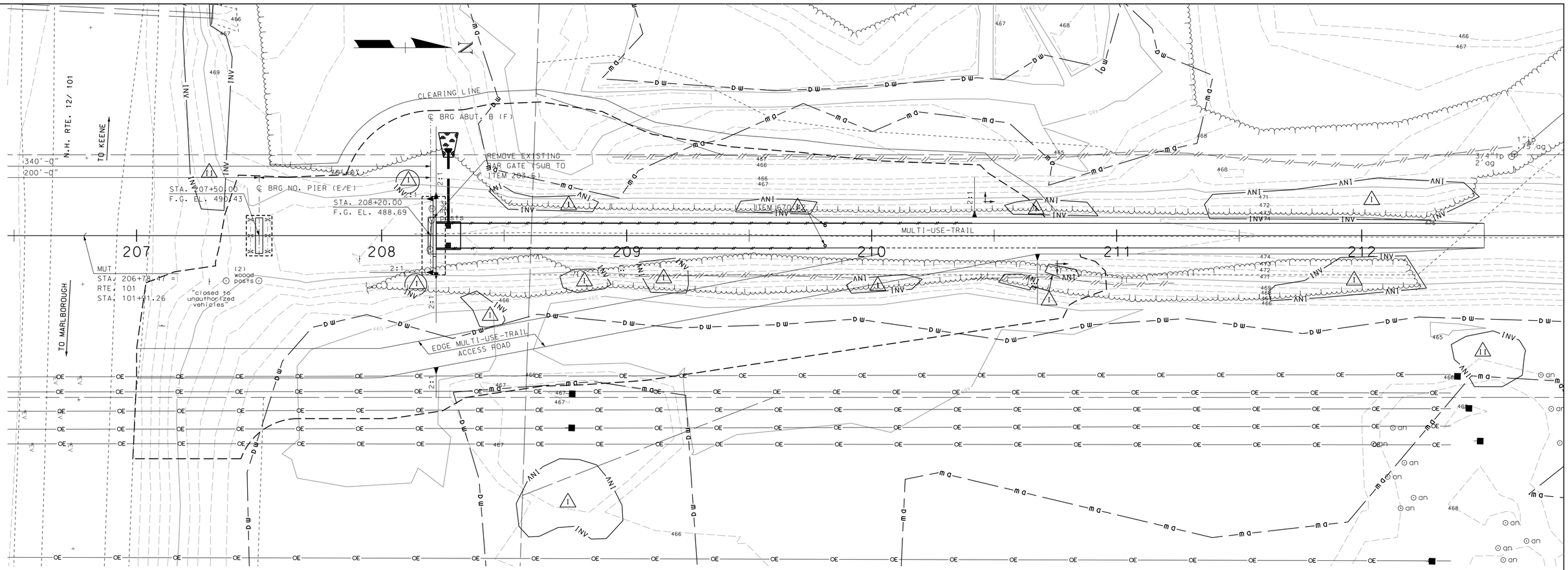
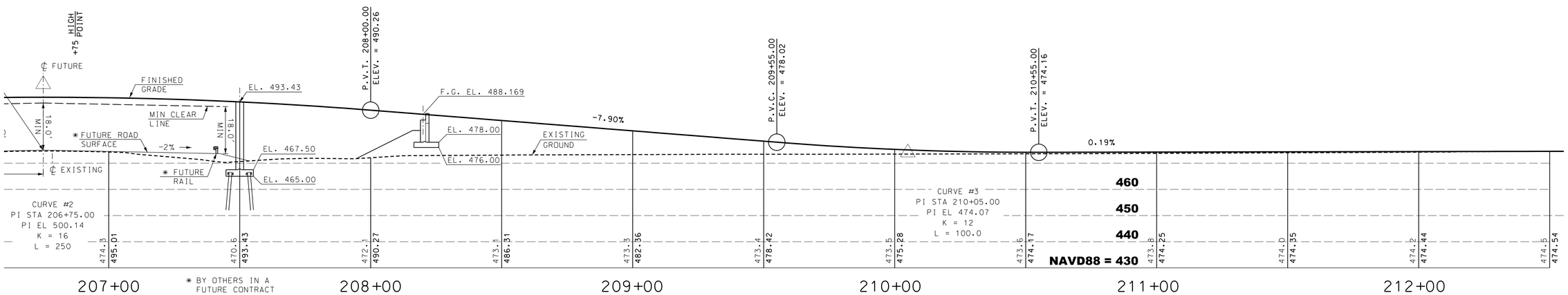




* BY OTHERS IN A FUTURE CONTRACT

PROFILE OF MULTI USE TRAIL BRIDGE

SCALE = 1" = 20'-0"

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY | BRIDGE NO. 128\061 | STATE PROJECT 10309p

LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

SITE PLAN (SHEET 2 OF 2)

BRIDGE SHEET 5 OF 15

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	JAS	8/15	CHECKED	KFD	8/15
	DRAWN	GMC	8/15	CHECKED	KFD	8/15
	QUANTITIES	JAS	8/15	CHECKED	KFD	8/15

FILE NUMBER 130-1-2

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
BRC/BrSite	10309pSite	1"=20'-0"

ISSUE DATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
REV. DATE	----------	10	34

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU – GEOTECHNICAL SECTION

PROJECT NAME KEENE-SWANZEY 10309P BRIDGE NO. 128/061
DESCRIPTION Multi-Use Trail over NH Route 101/NH Route 12

BORING NO. B20
SHEET NO. 1 OF 6
STA. 207+67.6 OFF. LT 16.9
BASELINE Multi Use Trail CL
ELEVATION (ft) 472.3
START/END 1/26/99 / 2/1/99
DRILLER Great Works
INSPECTOR Doug Rogers
CLASSIFIER DRR
EAST/NORTH (ft) 816689.6/154527.1

GROUNDWATER						EQUIPMENT	SAMPLER	CASING	CORE
DATE	TIME	DEPTH (ft)	ELEV. (ft)	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE:	S	NW	
2/1/99	9:05am	5.9	466.4	100.0	190.0	SIZE I.D. (in):	1.375	3	
						HAMMER WT. (lb):	140	DRILL RIG	
						HAMMER FALL (in):	30	Mobile B-59 Truck	
						HAMMER TYPE:	Safety		

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
0	0.6	471.7	4 6 6 5	S1	0.6 [30]	0.0–2.0	Loose, dark brown, frozen TOPSOIL, trace fibers, trace fine gravel -FILL-	
			3 3 2 2	S2	0.0 [0]	2.0–4.0	Loose, no recovery of sample (2 attempts)	
5			3 2 2 3	S3	1.0 [50]	4.0–6.0	Very loose, dark yellowish brown, silty FINE SAND/fine sandy SILT w/ isolated wood fragments	
	6.0 6.5	466.3 465.8	7 6 6 6	S4	1.1 [55]	6.0–8.0	Medium dense, dark yellowish brown, FINE SAND, some silt, trace wood fragments Medium dense, yellowish brown, FINE-MEDIUM SAND	
			4 4 4 6	S5	0.8 [40]	8.0–10.0	Loose, dark yellowish brown-dark greyish brown, FINE SAND (micaceous), trace silt -ALLUVIUM-	
10			3 3 3 4	S6	1.0 [50]	10.0–12.0	Loose, grey-brownish grey, FINE SAND, little-some medium sand	
			3 3 3 3	S7	1.0 [50]	12.0–14.0	Loose, brownish grey-grey, FINE SAND, w/ lenses of medium sand	
15			2 2 2 6	S8	0.9 [45]	14.0–16.0	Very loose, dark grey, FINE-COARSE SAND	
			7 6 7 6	S9	0.8 [40]	16.0–18.0	Medium dense, brownish grey, FINE-MEDIUM SAND, little-some coarse sand, trace fine gravel	
			3 3 3 4	S10	1.0 [50]	18.0–20.0	Loose, grey, FINE-MEDIUM SAND, little coarse sand	
20			3 3 4 4	S11	0.2 [10]	20.0–22.0	Loose, grey, FINE SAND, little medium sand	
25			8 4 4 4	S12	0.9 [45]	25.0–27.0	Loose, grey, FINE SAND, w/ occasional thin layer medium sand	

Sampler	Identification
S	Standard Split Spoon
SL	Large Spoon (O.D.= 3 in)
T	Thin Wall Tube
U	Undisturbed Piston
O	Open End Rod
A	Auger Flight
C	Core Barrel
NR	Not Recorded

COHESIVE SOILS Blows/foot (N)	Consistency
0 – 1	Very Soft
2 – 4	Soft
5 – 8	Medium Stiff
9 – 15	Stiff
16 – 30	Very Stiff
> 30	Hard

NON-COHESIVE SOILS Blows/foot (N)	Apparent Density
0 – 4	Very Loose
5 – 10	Loose
11 – 30	Medium Dense
31 – 50	Dense
> 50	Very Dense

WOR – Weight of Rod
WOH – Weight of Hammer

Soil Descriptions Capitalized Soil Name	Proportion Major Component
Lower Case Adjective	35% – 50%
Some	20% – 35%
Little	10% – 20%
Trace	1% – 10%

ENGLISH

BORING SCALE 1/4" = 1'-0"

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU – GEOTECHNICAL SECTION

PROJECT NAME KEENE-SWANZEY 10309P BRIDGE NO. 128/061
DESCRIPTION Multi-Use Trail over NH Route 101/NH Route 12

BORING NO. B20
SHEET NO. 2 OF 6
STA. 207+67.6 OFF. LT 16.9
BASELINE Multi Use Trail CL
ELEVATION (ft) 472.3

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
30			8 7 8 11	S13	1.2 [60]	30.0–32.0	Medium dense, grey, FINE-MEDIUM SAND (micaceous) -ALLUVIUM-	
35			6 6 7 11	S14	1.0 [50]	35.0–37.0	Medium dense, grey, FINE SAND, trace-little medium sand, w/ lenses of silty fine sand	
40			4 5 5 5	S15	1.1 [55]	40.0–42.0	Loose, dark grey-very dark grey, FINE SAND, slight trace of organics, trace of silt	
45			5 4 2 2	S16	1.2 [60]	45.0–47.0	Loose, dark grey-very dark grey, silty FINE SAND/fine sandy SILT, trace organics	
	48.0	424.3						
50			WOH 1 1 0	S17	1.9 [95]	50.0–52.0	Soft, dark grey, SILT, w/ silty fine sand partings, trace organics -LACUSTRINE DEPOSIT-	
55			WOR WOR WOR WOH	S18	2.0 [100]	55.0–57.0	Very soft, grey, silty CLAY, w/ occasional silty fine-medium sand partings	
60			WOH 2 3 3	S19	2.0 [100]	60.0–62.0	Medium stiff, grey, clayey SILT, w/ very thin dark grey silty clay layers (varved)	
65			1			65.0		

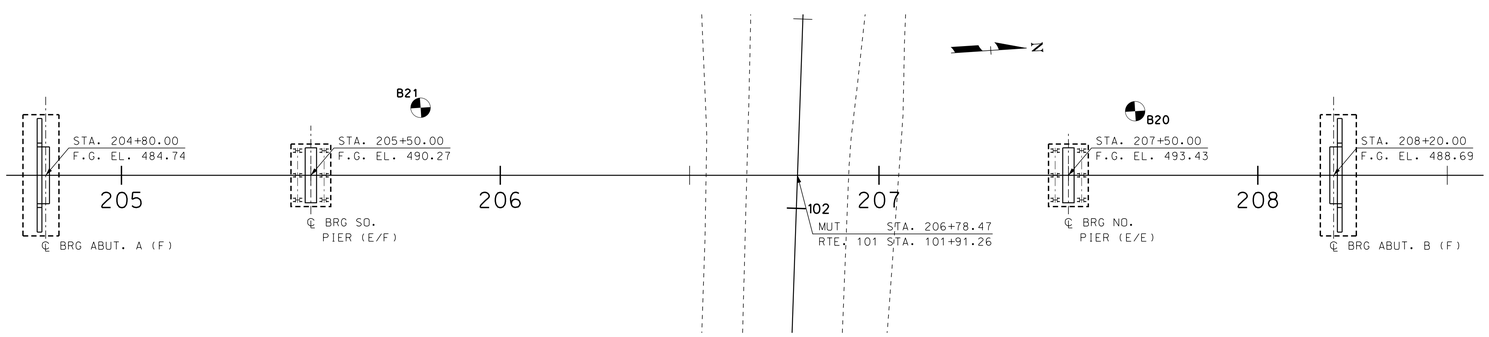
TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU – GEOTECHNICAL SECTION

PROJECT NAME KEENE-SWANZEY 10309P BRIDGE NO. 128/061
DESCRIPTION Multi-Use Trail over NH Route 101/NH Route 12

BORING NO. B20
SHEET NO. 3 OF 6
STA. 207+67.6 OFF. LT 16.9
BASELINE Multi Use Trail CL
ELEVATION (ft) 472.3

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
			2 3 3	S20	1.6 [80]	67.0	Medium stiff, similar to S19	
70			WOR WOR WOR WOH	S21	2.0 [100]	70.0–72.0	Very soft, grey, SILT, w/ dark grey clayey silt/silty clay layers -LACUSTRINE DEPOSIT-	
75			WOR WOR WOH WOH	S22	1.5 [75]	75.0–77.0	Very soft, similar to S21	
80			WOR WOH 3 3	S23	2.0 [100]	80.0–82.0	Soft, grey-olive grey, clayey SILT/silty CLAY	
85			WOR WOH 2 3	S24	2.0 [100]	85.0–87.0	Soft, grey-olive grey, clayey SILT/silty CLAY, w/ isolated fine sandy silt partings	
90			WOR WOR WOR 4	S25	2.0 [100]	90.0–92.0	Very soft, grey-olive grey, clayey SILT, w/ very thin fine sandy silt layers and partings	
95			WOR WOR WOH 3	S26	2.0 [100]	95.0–97.0	Very soft, olive grey-grey, clayey SILT/silty CLAY, w/ fine sandy silt partings	
100			WOR WOR 1 3	S27	2.0 [100]	100.0–102.0	Very soft, similar to S26	



BORING LAYOUT

SCALE 1" = 20'

BORING NOTES

(1) BORINGS INDICATED THUS ◔ WERE DRILLED BY NHDOT DRILL CREWS DURING 1998 AND 1999. FIGURES IN THE "BLOWS PER" COLUMN INDICATE THE NUMBER OF BLOWS REQUIRED TO DRIVE A 2" STANDARD SPLIT SPOON SAMPLER 6", USING A 140 LB. WEIGHT FALLING 30 INCHES.

(2) BORINGS ARE FOR DESIGN PURPOSES SHOWING CONDITIONS AT BORING POINTS ONLY, AND DO NOT NECESSARILY INDICATE MATERIAL TO BE ENCOUNTERED DURING CONSTRUCTION.

(3) THE GEOTECHNICAL REPORT IS AVAILABLE ON-LINE IN THE BID PACKAGE ON THE INVITATION TO BID WEB PAGE DURING THE BIDDING PERIOD. AFTER THE CONTRACT HAS BEEN AWARDED THE REPORT IS AVAILABLE IN THE NHDOT BUREAU OF MATERIALS AND RESEARCH OFFICE.

(4) THE WATER LEVELS INDICATED WERE MEASURED AT TIME OF EXPLORATION. WATER LEVELS ENCOUNTERED DURING CONSTRUCTION MAY VARY CONSIDERABLY DUE TO PREVAILING CLIMATE, RAINFALL OR OTHER FACTORS.

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY BRIDGE NO. 128\061 STATE PROJECT 10309p
LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

BORINGS (SHEET 1 OF 4)

BRIDGE SHEET 6 OF 15

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	NHDOT	8/15	CHECKED	NHDOT	8/15
	DRAWN	JAS	8/15	CHECKED	KFD	8/15
	QUANTITIES	---	---	CHECKED	---	---

FILE NUMBER 130-1-2

ISSUE DATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
REV. DATE	----------	11	34

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
BRC\BRSITE	10309P boring	AS NOTED

10309P boring.dgn Default 9/22/2015 9:49:54 AM "n18smg"

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU – GEOTECHNICAL SECTION

BORING NO. B20
SHEET NO. 4 OF 6
STA. 207+67.6 OFF. LT 16.9
BASELINE Multi Use Trail CL
ELEVATION (ft) 472.3

PROJECT NAME KEENE–SWANZEY 10309P BRIDGE NO. 128/061
DESCRIPTION Multi–Use Trail over NH Route 101/NH Route 12

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS
105			WOR WOR WOH 5	S28	2.0 [100]	105.0–107.0	Very soft, similar to S26
							–LACUSTRINE DEPOSIT–
110			WOR WOR 2 4	S29	2.0 [100]	110.0–112.0	Soft, olive grey, silty CLAY, w/ occasional very thin fine sandy silt/silty fine sand layers
115			WOR WOH 3 4	S30	2.0 [100]	115.0–117.0	Soft, olive grey, clayey SILT/silty CLAY, w/ occasional silty fine sand layer
120			4 0 1 3	S31	2.0 [100]	120.0–122.0	Very soft, olive grey, SILT, w/ dark grey fine sandy silt layers (2 to 3 inches)
125			WOH 3 1 2	S32	2.0 [100]	125.0–127.0	Soft, similar to S31
130			7 5 5 6	S33	0.8 [40]	130.0–132.0	Stiff, grey, clayey SILT and silty CLAY, w/ silty fine sand layers
135			WOR WOR WOR WOH	S34	2.0 [100]	135.0–137.0	Very soft, grey, silty CLAY

BORING SCALE 1/4" = 1'-0"

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU – GEOTECHNICAL SECTION

BORING NO. B20
SHEET NO. 5 OF 6
STA. 207+67.6 OFF. LT 16.9
BASELINE Multi Use Trail CL
ELEVATION (ft) 472.3

PROJECT NAME KEENE–SWANZEY 10309P BRIDGE NO. 128/061
DESCRIPTION Multi–Use Trail over NH Route 101/NH Route 12

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS
140			4 2 7 12	S35	2.0 [100]	140.0–142.0	Stiff, grey–olive grey, silty CLAY, w/ layers of fine sandy silt
145			4 2 3 6	S36	2.0 [100]	145.0–147.0	Medium stiff, olive grey, silty CLAY, w/ layers of silt
							–LACUSTRINE DEPOSIT–
150			4 8 7 6	S37	2.0 [100]	150.0–152.0	Medium dense, grey–dark grey, clayey SILT, w/ layers and lenses of silty fine sand/fine sandy silt
155	155.5	316.8	6 12 22 11	S38	0.9 [45]	155.0–157.0	Stiff, grey, clayey SILT, w/ traces of fine–medium sand
	157.0	315.3					Dense, grey, silty FINE SAND
160			5 4 5 6	S39	1.9 [95]	160.0–162.0	Stiff, grey, fine sandy SILT, w/ layers of clayey silt
165	166.0	306.3	WOR 1 13 18	S40	1.8 [90]	165.0–167.0	Soft, grey–dark grey, silty CLAY and clayey SILT
	167.0	305.3					Dense, dark grey, fine sandy SILT
170			2 0 0 10 2	S41	1.7 [85]	170.0–172.0	Very soft, grey, silty CLAY
175						175.0	

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU – GEOTECHNICAL SECTION

BORING NO. B20
SHEET NO. 6 OF 6
STA. 207+67.6 OFF. LT 16.9
BASELINE Multi Use Trail CL
ELEVATION (ft) 472.3

PROJECT NAME KEENE–SWANZEY 10309P BRIDGE NO. 128/061
DESCRIPTION Multi–Use Trail over NH Route 101/NH Route 12

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS
			0 2 8	S42	1.4 [70]	177.0–180.0	Soft, grey, silty CLAY/clayey SILT, w/ silty fine sand and fine sandy silt parlings
180			WOR WOR WOH WOH	S43	2.0 [100]	180.0–182.0	Very soft, grey–olive grey, silty CLAY
	182.4	289.9					Note: stones encountered while advancing to 185 feet
							–GLACIAL TILL–
185			102 80 75	S44	0.8 [53]	185.0–186.5	Very dense, grey, FINE–COARSE SAND, some gravel, some silt, w/ weathered rock fragments
	188.0	284.3					
							APPROXIMATE BEDROCK SURFACE
190							Advanced hole to 190.5 feet w/ roller bit; cutting slow but steady from 188 feet
							Bottom of Exploration @ 190.5 ft (El. 281.8)
195							
200							
205							
210							

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY BRIDGE NO. 128\061 STATE PROJECT 10309p
LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

BORINGS (SHEET 2 OF 4)

BRIDGE SHEET 7 OF 15

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	NHDOT	8/15	CHECKED	NHDOT	8/15
	DRAWN	JAS	8/15	CHECKED	KFD	8/15
	QUANTITIES	---	---	CHECKED	---	---

FILE NUMBER 130-1-2

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
BRC\BRSITE	10309P boring	AS NOTED

ISSUE DATE
REV. DATE

FEDERAL PROJECT NO. ----------
SHEET NO. 12
TOTAL SHEETS 34

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU – GEOTECHNICAL SECTION

PROJECT NAME KEENE–SWANZEY 10309P BRIDGE NO. 128/061
DESCRIPTION Multi–Use Trail over NH Route 101/NH Route 12

BORING NO. B21
SHEET NO. 1 OF 6
STA. 205+79.0 OFF. LT 17.8
BASELINE Multi Use Trail CL
ELEVATION (ft) 470.1
START/END 11/9/98 / 11/16/98
DRILLER Great Works
INSPECTOR John Soper
CLASSIFIER JKS
EAST/NORTH (ft) 818676.4/154338.9

GROUNDWATER						EQUIPMENT	SAMPLER	CASING	CORE
DATE	TIME	DEPTH (ft)	ELEV. (ft)	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE:	S	NW	NX
						SIZE I.D. (in):	1.375	3	1.875
11/10/98	7:00	8.7	461.4	40	60	HAMMER WT. (lb):	140	DRILL RIG	
						HAMMER FALL (in):	30	Mobile B–59 Truck	
						HAMMER TYPE:	Safety		

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS
0			2 4 3 8	S1	1.1 [55]	0.0 – 2.0	Loose, olive brown, FINE SAND, little silt, trace medium to coarse sand, trace fine and coarse gravel
							–FILL–
			7 4 3 4	S2	0.0 [0]	2.0 – 4.0	No recovery
5	4.5	465.6	10 4 5 5	S3	1.1 [55]	4.0 – 6.0	Loose, light olive brown, FINE to MEDIUM SAND, trace silt, trace coarse sand
							–ALLUVIUM–
			3 3 3 3	S4	1.0 [50]	6.0 – 8.0	Loose, olive grey, FINE SAND, trace silt
			2 2 3 4	S5	1.0 [50]	8.0 – 10.0	Loose, similar to S4
10			2 3 4 5	S6	1.4 [70]	10.0 – 12.0	Loose, olive grey, FINE to MEDIUM SAND, little coarse sand, trace silt, trace fine gravel
			2 3 3 2	S7	1.1 [55]	12.0 – 14.0	Loose, similar to S6
			3 3 2 6	S8	1.0 [50]	14.0 – 16.0	Loose, olive grey, FINE SAND, little to trace silt
15			5 5 5 4	S9	1.0 [50]	16.0 – 18.0	Loose, olive grey, FINE to COARSE SAND, trace fine gravel
			4 3 4 4	S10	1.1 [55]	18.0 – 20.0	Loose, olive grey, FINE SAND, trace silt
20			2 2 3 4	S11	1.2 [60]	20.0 – 22.0	Loose, grey, FINE to MEDIUM SAND, some coarse sand
25			2 3 4 4	S12	1.4 [70]	25.0 – 27.0	Loose, grey, FINE to MEDIUM SAND, trace silt

Sampler	Identification
S	Standard Split Spoon
SL	Large Spoon (O.D.= 3 in)
T	Thin Wall Tube
U	Undisturbed Piston
O	Open End Rod
A	Auger Flight
C	Core Barrel
NR	Not Recorded

COHESIVE SOILS Blows/foot (N)	Consistency
0 – 1	Very Soft
2 – 4	Soft
5 – 8	Medium Stiff
9 – 15	Stiff
16 – 30	Very Stiff
> 30	Hard

NON–COHESIVE SOILS Blows/foot (N)	Apparent Density
0 – 4	Very Loose
5 – 10	Loose
11 – 30	Medium Dense
31 – 50	Dense
> 50	Very Dense

WOR – Weight of Rod
WOH – Weight of Hammer

Soil Descriptions	Proportion
Capitalized Soil Name	Major Component
Lower Case Adjective	35% – 50%
Some	20% – 35%
Little	10% – 20%
Trace	1% – 10%

ENGLISH

BORING SCALE 1/4" = 1'–0"

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU – GEOTECHNICAL SECTION

PROJECT NAME KEENE–SWANZEY 10309P BRIDGE NO. 128/061
DESCRIPTION Multi–Use Trail over NH Route 101/NH Route 12

BORING NO. B21
SHEET NO. 2 OF 6
STA. 205+79.0 OFF. LT 17.8
BASELINE Multi Use Trail CL
ELEVATION (ft) 470.1

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS
30			3 6 7 7	S13	1.2 [60]	30.0 – 32.0	Medium dense, grey, FINE SAND, trace silt
							–ALLUVIUM–
35			6 4 3 3	S14	1.1 [55]	35.0 – 37.0	Loose, similar to S13
40			4 3 6 9	S15	1.7 [85]	40.0 – 42.0	Loose, dark grey, FINE SAND, some silt
45	45.5	424.6	2 2 2 2	S16	2.0 [100]	45.0 – 47.0	Soft, olive grey, SILT, little to trace clay, trace fine sand
							–LACUSTRINE DEPOSIT–
50			WOR WOR 1 5	S17	2.0 [100]	50.0 – 52.0	Very soft, olive grey, silty CLAY/clayey SILT varved, with occasional seam of fine to coarse sand
55			4 5 5 5	S18	2.0 [100]	55.0 – 57.0	Stiff, similar to S17
60			2 4 5 7 5	S19	2.0 [100]	60.0 – 62.0	Stiff, olive grey, silty CLAY/clayey SILT varved, with occasional seam of FINE to COARSE SAND
			4 4 4 4	S20	2.0 [67]	62.0 – 65.0	Medium Stiff, olive grey, silty CLAY/clayey SILT varved
65							

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU – GEOTECHNICAL SECTION

PROJECT NAME KEENE–SWANZEY 10309P BRIDGE NO. 128/061
DESCRIPTION Multi–Use Trail over NH Route 101/NH Route 12

BORING NO. B21
SHEET NO. 3 OF 6
STA. 205+79.0 OFF. LT 17.8
BASELINE Multi Use Trail CL
ELEVATION (ft) 470.1

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS
70			3 WOH 2 3	S21	2.0 [100]	70.0 – 72.0	Soft, similar to S20
							–LACUSTRINE DEPOSIT–
75			3 1 1 4	S22	2.0 [100]	75.0 – 77.0	Soft, olive grey, silty CLAY/clayey SILT, with frequent seams of FINE SAND, some silt
80			WOR WOR 5 5	S23	2.0 [100]	80.0 – 82.0	Medium stiff, similar to S22
85			WOR WOR 5 5	S24	2.0 [100]	85.0 – 87.0	Medium stiff, similar to S22
90			WOR WOR 7 6	S25	2.0 [100]	90.0 – 92.0	Medium stiff, olive grey, silty CLAY/clayey SILT varved, with frequent seams of fine sand, some silt
95			WOR WOR WOR 5	S26	2.0 [100]	95.0 – 97.0	Very soft, olive grey, silty CLAY/clayey SILT varved, with frequent layers of fine sand, some silt
100			WOR WOR 7 8	S27	2.0 [100]	100.0 – 102.0	Medium stiff, similar to S26

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY BRIDGE NO. 128\061 STATE PROJECT 10309p

LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

BORINGS (SHEET 3 OF 4)

BRIDGE SHEET 8 OF 15

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	NHDOT	8/15	CHECKED	NHDOT	8/15
	DRAWN	JAS	8/15	CHECKED	KFD	8/15
	QUANTITIES	---	---	CHECKED	---	---

FILE NUMBER 130-1-2

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE	ISSUE DATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
BRC\BRSITE	10309P boring	AS NOTED	REV. DATE	----------	13	34

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU – GEOTECHNICAL SECTION

PROJECT NAME KEENE–SWANZEY 10309P BRIDGE NO. 128/061
DESCRIPTION Multi–Use Trail over NH Route 101/NH Route 12

BORING NO. B21
SHEET NO. 4 OF 6
STA. 205+79.0 OFF. LT 17.8
BASELINE Multi Use Trail CL
ELEVATION (ft) 470.1

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (in) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
105			WOR WOR 6 7	S28	2.0 [100]	105.0 – 107.0	Medium stiff, similar to S26	
							–LACUSTRINE DEPOSIT–	
110			1 WOR 1 4	S29	2.0 [100]	110.0 – 112.0	Very soft, similar to S26	
115			WOR WOR 6 8	S30	2.0 [100]	115.0 – 117.0	Medium stiff, similar to S26	
120			WOH WOH 6 6	S31	2.0 [100]	120.0 – 122.0	Medium stiff, olive grey, silty CLAY/clayey SILT varved, with frequent partings of fine sand, some silt	
125			5 7 11 15	S32	1.8 [90]	125.0 – 127.0	Medium dense, dark grey, FINE SAND, some silt, with occasional layers of silty clay	
130			1 4 7 7	S33	1.8 [90]	130.0 – 132.0	Stiff, dark grey, silty CLAY/clayey SILT varved, with occasional seam of fine sand, some silt	
135			WOR WOR 10 10	S34	2.0 [100]	135.0 – 137.0	Stiff, olive grey, silty CLAY/clayey SILT varved, with occasional layer of fine sand, some silt	

BORING SCALE 1/4" = 1'-0"

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU – GEOTECHNICAL SECTION

PROJECT NAME KEENE–SWANZEY 10309P BRIDGE NO. 128/061
DESCRIPTION Multi–Use Trail over NH Route 101/NH Route 12

BORING NO. B21
SHEET NO. 5 OF 6
STA. 205+79.0 OFF. LT 17.8
BASELINE Multi Use Trail CL
ELEVATION (ft) 470.1

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (in) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
140			6 5 7 9	S35	2.0 [100]	140.0 – 142.0	Medium dense, olive grey, FINE SAND, some silt, with occasional layer of silty clay/clayey silt varved	
145			2 WOH WOH 2	S36	1.5 [75]	145.0 – 147.0	Very loose, similar to S35	
							–LACUSTRINE DEPOSIT–	
150			WOH 7 11 20	S37	2.0 [100]	150.0 – 152.0	Very soft, olive grey, silty CLAY/clayey SILT varved, with occasional layer of fine sand, some silt	
155			1 WOH 6 9	S38	2.0 [100]	155.0 – 157.0	Loose, olive grey, FINE SAND, some silt, with occasional layer of silty clay/clayey silt varved	
160	160.0	310.1					Advanced drill bit through several boulders and cobbles from 160 feet to 164.5 feet	
							–GLACIAL TILL–	
165			14 27 20 52	S39	0.0 [0]	165.0 – 167.0	No recovery. Tried several times to retrieve a sample at 165 feet. Had heaved sands into casing from 4 to 6 feet, even with a column of water in casing.	
	167.3	302.8					–APPROXIMATE BEDROCK SURFACE–	
							Advanced roller bit from 167.3 feet to 170 feet	
170				C1	0.0 [0]	170.0 – 175.0	Bedrock is very severe to completely weathered, no recovery in core barrel. Wash water from boring was material that makes up the parent gneiss in the Keene area.	
175								

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU – GEOTECHNICAL SECTION

PROJECT NAME KEENE–SWANZEY 10309P BRIDGE NO. 128/061
DESCRIPTION Multi–Use Trail over NH Route 101/NH Route 12

BORING NO. B21
SHEET NO. 6 OF 6
STA. 205+79.0 OFF. LT 17.8
BASELINE Multi Use Trail CL
ELEVATION (ft) 470.1

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (in) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
				C2	1.8 [36]	180.0	Hard, fresh, sound, medium grained, dark grey, GNEISS. Lost the lower part of rock core in to the boring, could not recover. RQD=1.8/5.0=36%	
180							Bottom of Exploration @ 180.0 ft (El. 290.1)	
185								
190								
195								
200								
205								
210								

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
BRC\BRSITE	10309P boring	AS NOTED

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY BRIDGE NO. 128\061 STATE PROJECT 10309p
LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

BORINGS (SHEET 4 OF 4)

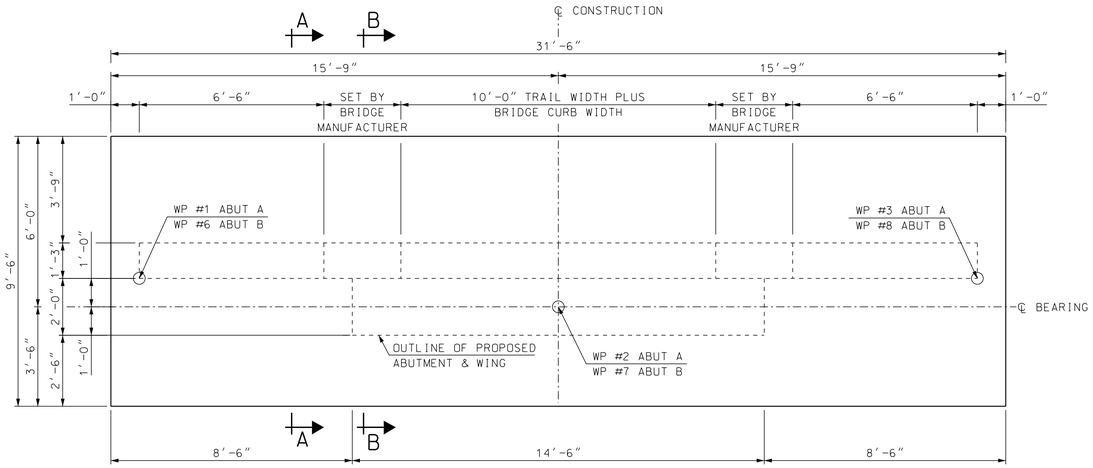
BRIDGE SHEET 9 OF 15

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	NHDOT	8/15	CHECKED	NHDOT	8/15
	DRAWN	JAS	8/15	CHECKED	KFD	8/15
	QUANTITIES	---	---	CHECKED	---	---

ISSUE DATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
REV. DATE	----------	14	34

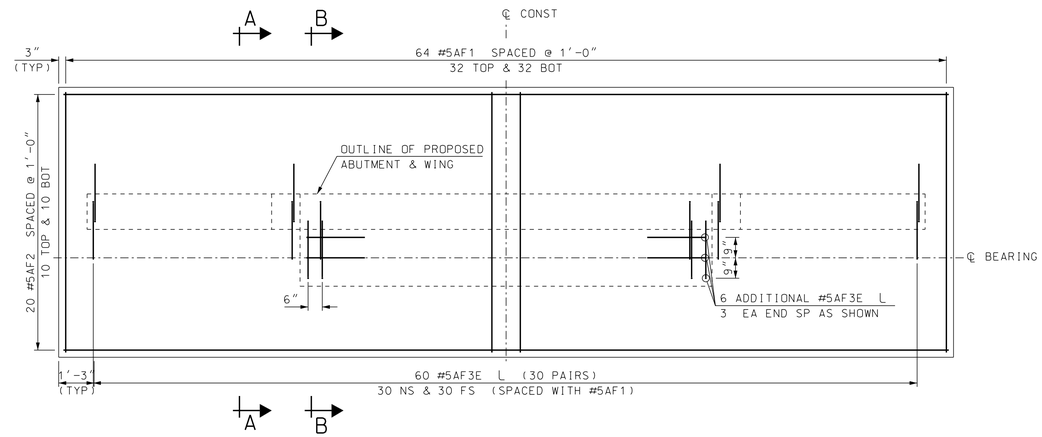
FILE NUMBER 130-1-2

10309P boring.dgn Default 9/22/2015 9:49:56 AM "n18smg"



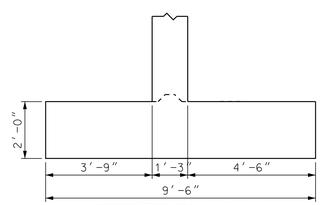
ABUTMENT FOOTING - MASONRY

SCALE 3/8" = 1'-0"



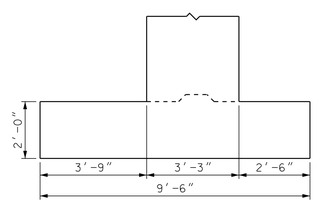
ABUTMENT FOOTING - REINFORCING

SCALE 3/8" = 1'-0"



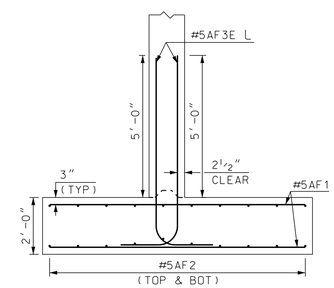
SECTION A-A

SCALE 3/8" = 1'-0"



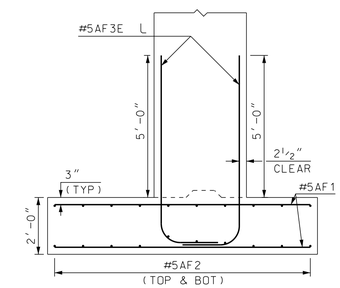
SECTION B-B

SCALE 3/8" = 1'-0"



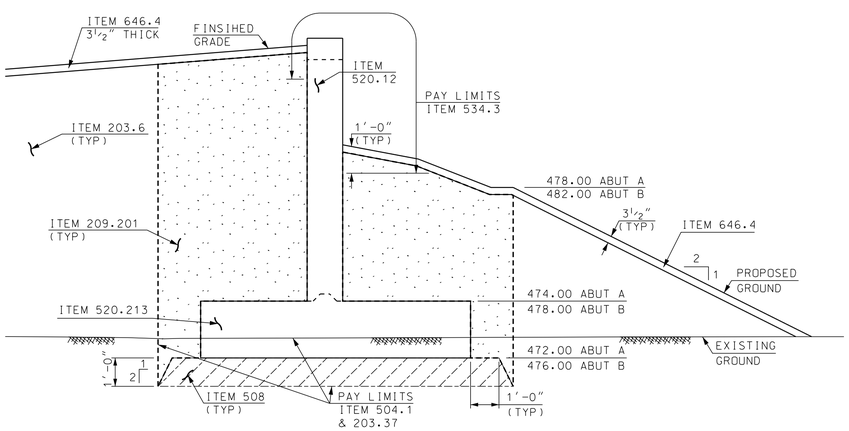
SECTION A-A

SCALE 3/8" = 1'-0"



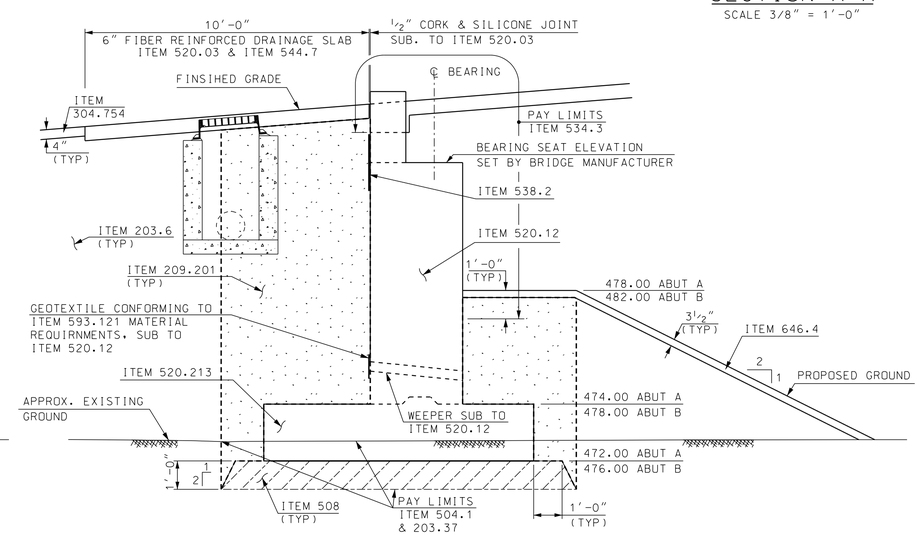
SECTION B-B

SCALE 3/8" = 1'-0"



SECTION A-A

SCALE 3/8" = 1'-0"



SECTION B-B

SCALE 3/8" = 1'-0"

ABUTMENT ELEVATION SECTIONS

FOR LOCATIONS SEE BRIDGE SHEET 11

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
BRC\DETAILS	10309p abut	AS NOTED

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY | BRIDGE NO. 128\061 | STATE PROJECT 10309p

LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

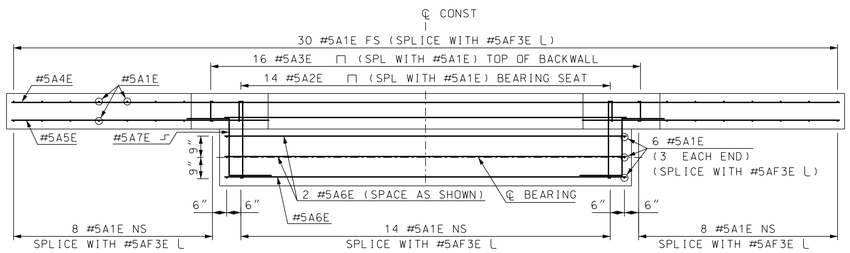
ABUTMENT FOOTING MASONRY & REINFORCING

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	JAS	8/15	CHECKED	KFD	8/15
	DRAWN	JAS	8/15	CHECKED	KFD	8/15
	QUANTITIES	JAS	8/15	CHECKED	JER	8/15
	ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.	
	REV. DATE		----------		15	

BRIDGE SHEET 10 OF 15

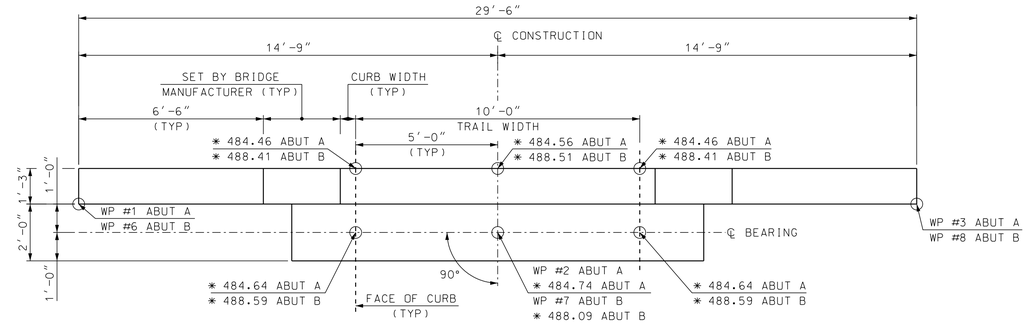
FILE NUMBER 130-1-2

TOTAL SHEETS 34



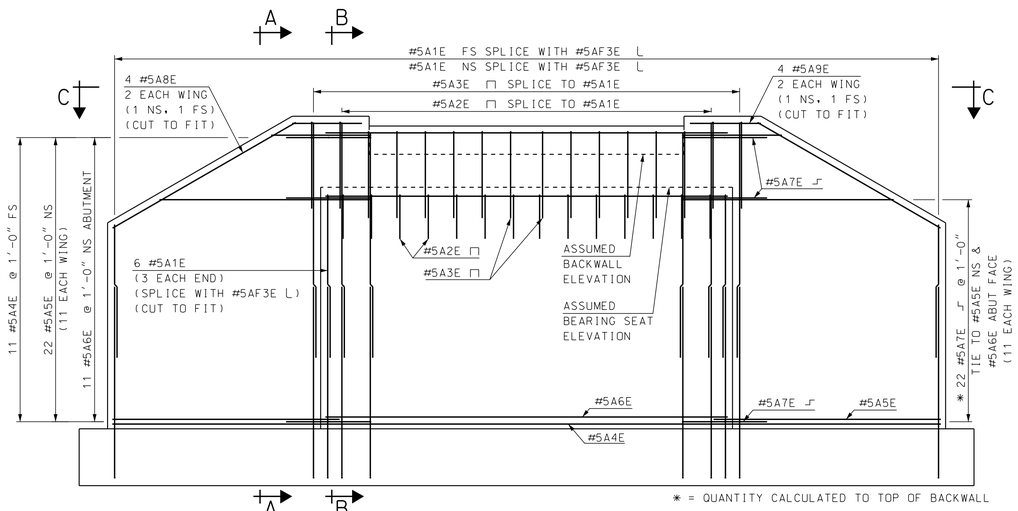
VIEW C-C

SCALE 3/8" = 1'-0"



ABUTMENT PLAN

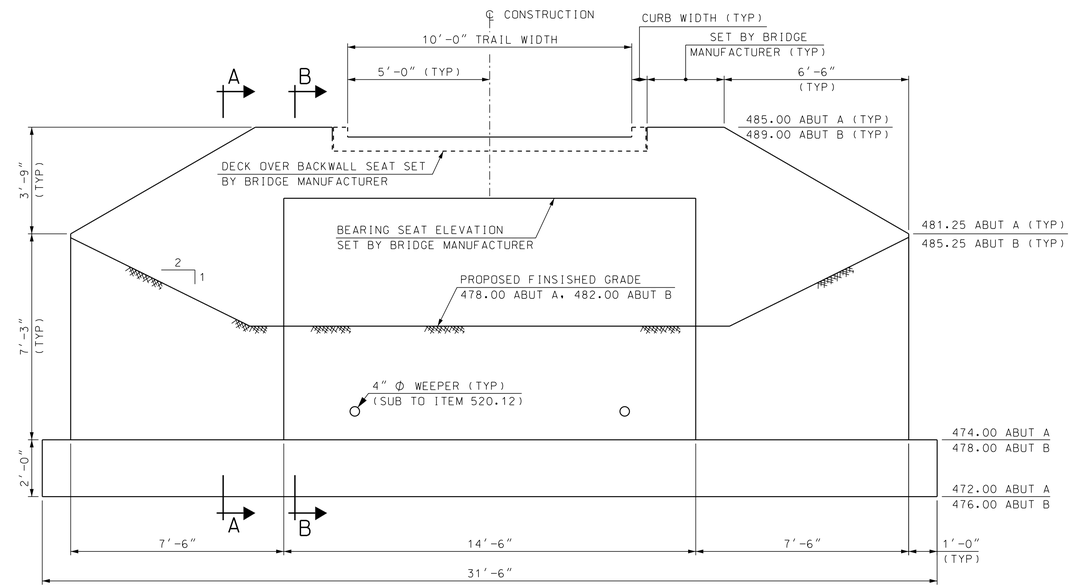
SCALE 3/8" = 1'-0"



✱ = QUANTITY CALCULATED TO TOP OF BACKWALL

ABUTMENT ELEVATION

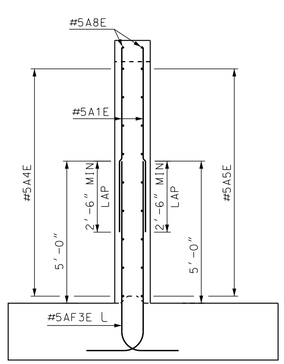
SCALE 3/8" = 1'-0"



ABUTMENT ELEVATION

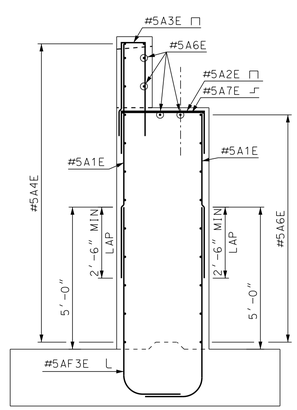
SCALE 3/8" = 1'-0"

✱ FINSIHED PROFILE GRADE ELEVATION



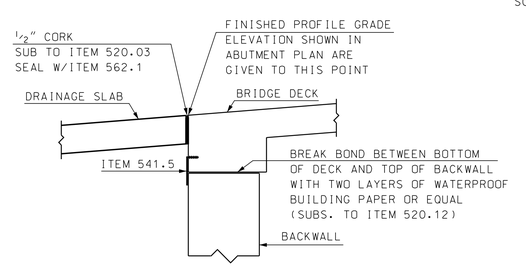
SECTION A-A

SCALE 3/8" = 1'-0"



SECTION B-B

SCALE 3/8" = 1'-0"



DECK OVER BACKWALL

SCALE 3/4" = 1'-0"

NOTES:

1) PILASTER, BACKWALL & BEARING SEAT ELEVATIONS SHALL BE SET BY BRIDGE MANUFACTURER, IN ACCORDANCE WITH SPECIAL PROVISION 595.

2) LENGTH OF PILASTERS AND BACKWALL SHALL BE SET BY BRIDGE MANUFACTURER, TO BLEND SEAMLESSLY TO THE BRIDGE, IN ACCORDANCE WITH SPECIAL PROVISION 595.

3) DECK OVER BACKWALL DETAILING SHALL BE PROVIDED TO THE NHDOT DEPARTMENT OF BRIDGE DESIGN FOR APPROVAL, IN ACCORDANCE WITH SPECIAL PROVISION 595.

4) FOR ABUTMENT ELEVATION SECTION A-A AND B-B, SEE BRIDGE SHEET 10.

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
BRC\DETAILS	10309p abut	AS NOTED

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY BRIDGE NO. 128\061 STATE PROJECT 10309p

LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

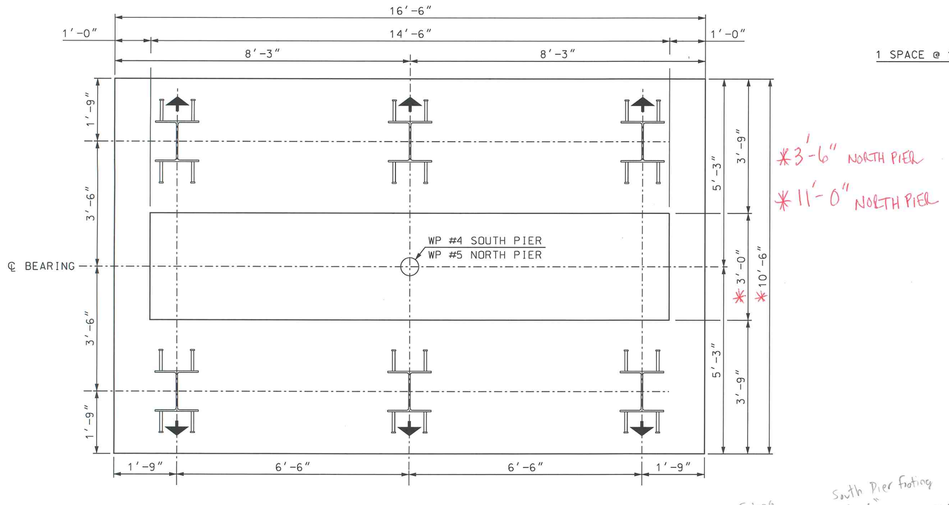
ABUTMENT STEM MASONRY & REINFORCING

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	JAS	8/15	CHECKED	KFD	8/15
	DRAWN	JAS	8/15	CHECKED	KFD	8/15
	QUANTITIES	JAS	8/15	CHECKED	JER	8/15
	ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.	
	REV. DATE		----------		16	

BRIDGE SHEET 11 OF 15

FILE NUMBER 130-1-2

TOTAL SHEETS 34



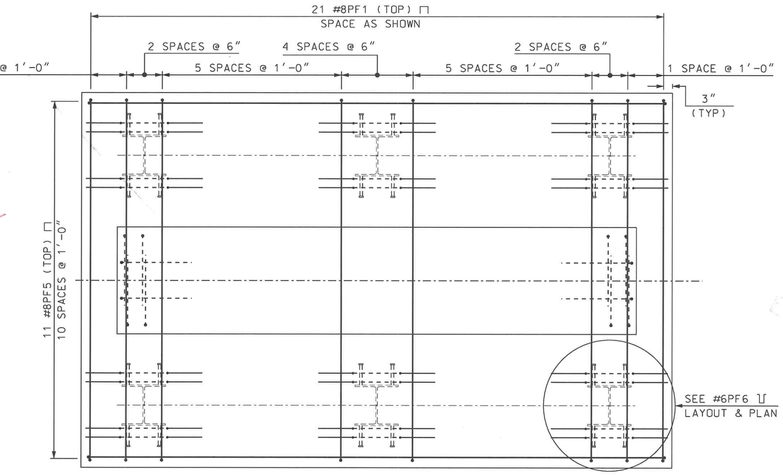
PIER FOOTING MASONRY
& PILE LAYOUT
SCALE 1/2" = 1'-0"

North Pier Footing
16'-6"
11'-0"
3'-0"
544.5 ft.³
20.16 Yds³

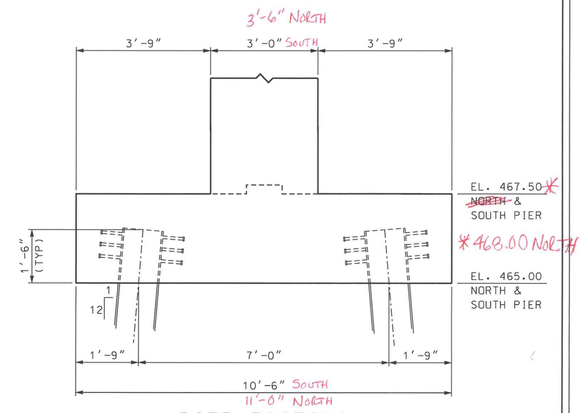
South Pier Footing
16'-6"
10'-6"
3'-6"
433.125 ft.³
16.04 Yds³

North Pier
14'-6"
3'-6"
35.43'
1290.525 ft.³
47.79 Yds³

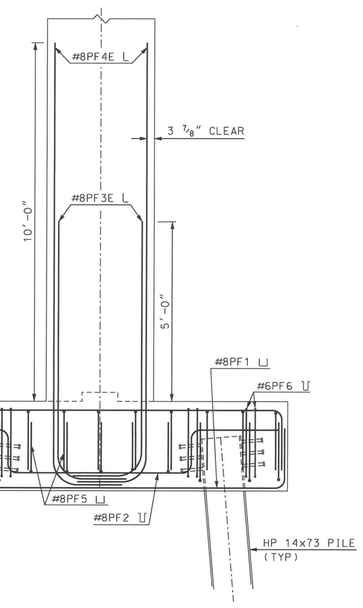
South Pier
14'-6"
3'-0"
32.77 ft.
990.225 ft.³
36.675 Yds³



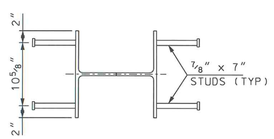
PIER FOOTING REINFORCING
TOP MAT
SCALE 1/2" = 1'-0"



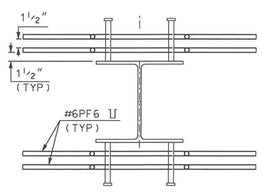
PIER FOOTING
MASONRY SECTION
SCALE: 1/2" = 1'-0"



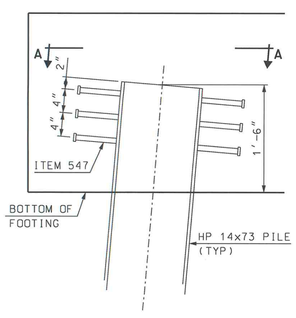
PIER FOOTING REINFORCING
SCALE 1/2" = 1'-0"



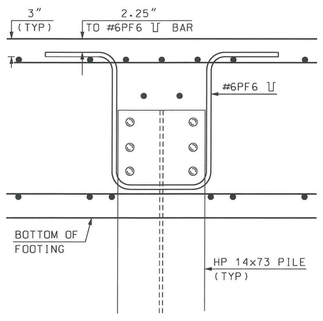
SECTION A-A
SCALE 1" = 1'-0"



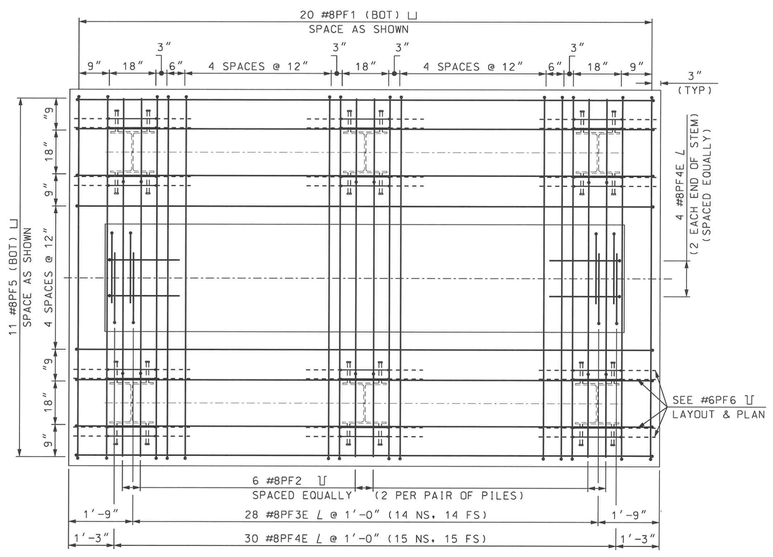
#6PF6 ∪ PLAN
SCALE 1" = 1'-0"



SHEAR STUD LAYOUT
SCALE 1" = 1'-0"



#6PF6 ∪ LAYOUT
SCALE 1" = 1'-0"



PIER FOOTING REINFORCING
BOTTOM MAT
SCALE 1/2" = 1'-0"

AS BUILT PLANS

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY | BRIDGE NO. 128\061 | STATE PROJECT 10309p

LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

PIER FTG MASONRY & REINFORCING & PILE LAYOUT

BRIDGE SHEET 12 OF 15

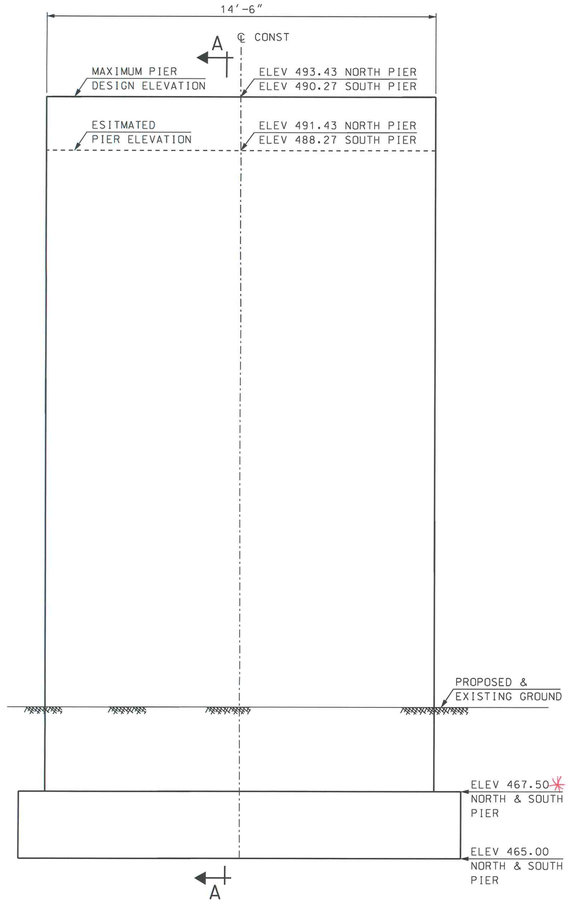
REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	JAS	8/15	CHECKED	KFD	8/15
	DRAWN	JAS	8/15	CHECKED	KFD	8/15
	QUANTITIES	JAS	8/15	CHECKED	JER	8/15

FILE NUMBER 130-1-2

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
BRC\DETAILS	pier	AS NOTED

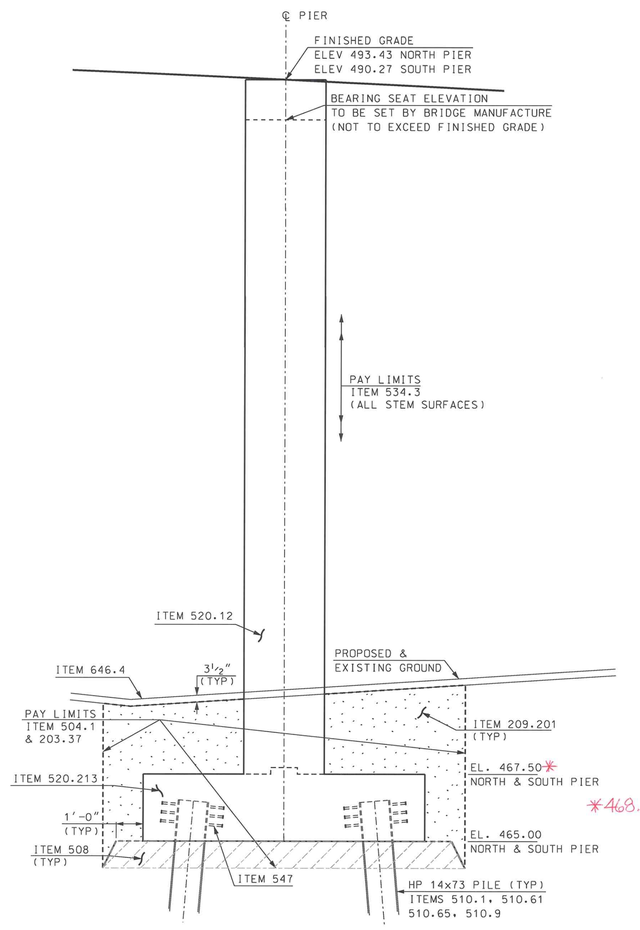
ISSUE DATE		FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
REV. DATE		----------	17	34

pier.dgn MX 9/22/2015 9:50:00 AM "n18smo"



ELEVATION

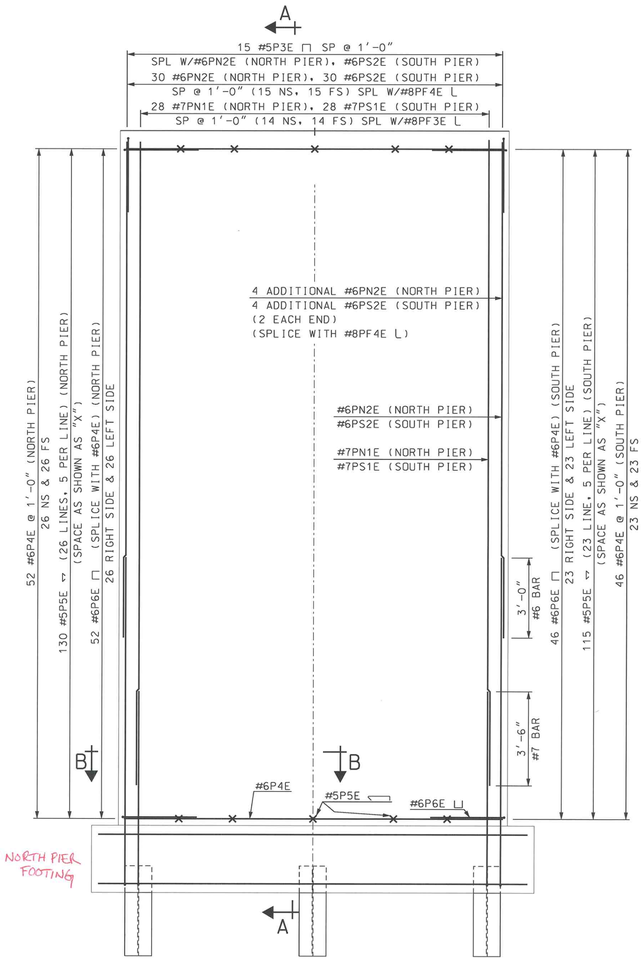
SCALE 3/8" = 1'-0"



*468.00 NORTH PIER FOOTING

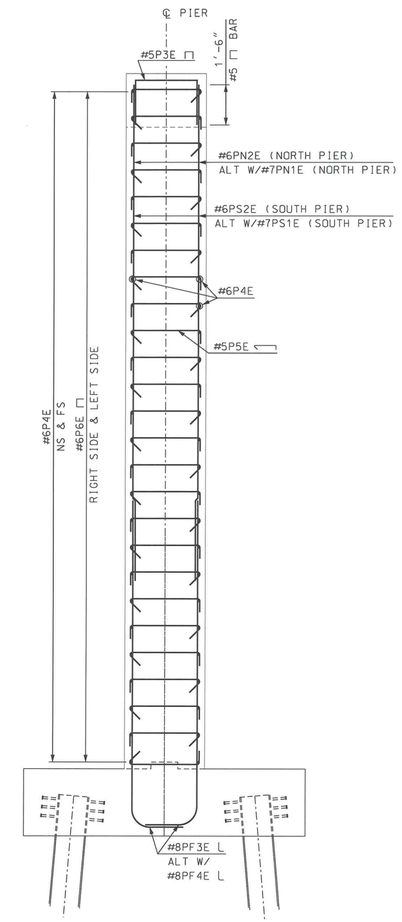
SECTION A-A

SCALE 3/8" = 1'-0"



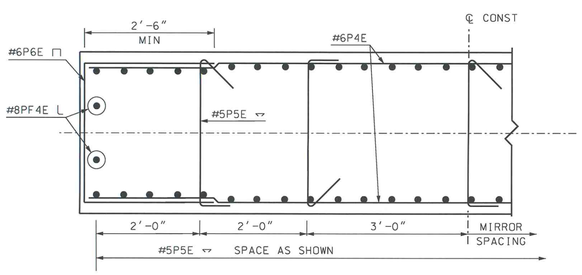
REINFORCING ELEVATION

SCALE 3/8" = 1'-0"



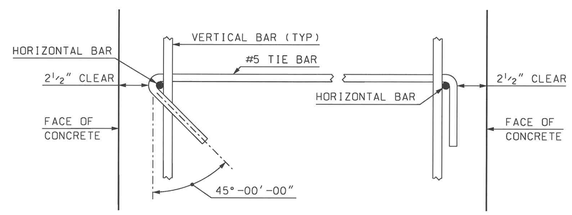
SECTION A-A REINFORCING

SCALE 3/8" = 1'-0"



SECTION B-B

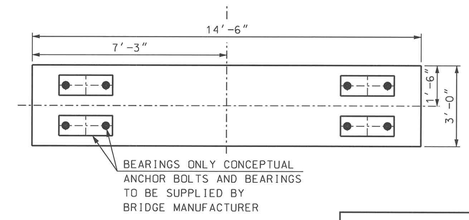
SCALE: 3/8" - 1'-0"



NOTE: ALTERNATE 90° & 135° HOOKS IN BOTH THE VERT & HORZ SPACING DIRECTIONS

TYPICAL TIE BAR DETAIL

SCALE 2" = 1'-0"



PLAN

SCALE 3/8" = 1'-0"

AS BUILT PLANS

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY | BRIDGE NO. 128\061 | STATE PROJECT 10309p

LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

PIER STEM MASONRY & REINFORCING

BRIDGE SHEET 13 OF 15

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	JAS	8/15	CHECKED	KFD	8/15
	DRAWN	JAS	8/15	CHECKED	KFD	8/15
	QUANTITIES	JAS	8/15	CHECKED	JER	8/15
	ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.	TOTAL SHEETS
	REV. DATE		----------		18	34

FILE NUMBER 130-1-2

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
BRC\DETAILS	pier	AS NOTED

pier.dgn MX 9/22/2015 9:50:01 AM "n18emo"

Abutment Footing BRIDGE SHEET 10 OF 15

Mark	Size	Length	# Pieces	Type	A	B	C	D	E	F	G	H	J	K	R	O	Coating
AF 1	#5	9.00	128	—													
AF 2	#5	31.00	40	—													
AF 3	#5	9.16	132	N3		2.00	1.13	6.03						0.00	0.67		EPOXY

SECTION SUMMARY TOTAL WEIGHT (lbs):

ITEM #	DESCRIPTION	#3	#4	#5	#6	#7	#8	#9	#10	#11	#14	#18	TOTAL
544	REINFORCING STEEL	0	0	2495	0	0	0	0	0	0	0	0	2495
544.11	MECH. CONNECTOR	0	0	0	0	0	0	0	0	0	0	0	0
544.2	EPOXY COATED	0	0	1261	0	0	0	0	0	0	0	0	1261
544.21	EPOXY MECH. CON.	0	0	0	0	0	0	0	0	0	0	0	0

Abutment Stem BRIDGE SHEET 11 OF 15

Mark	Size	Length	# Pieces	Type	A	B	C	D	E	F	G	H	J	K	R	O	Coating
A 1	#5	8.50	132	—													EPOXY
A 2	#5	5.83	28	17		1.50	2.83	1.50									EPOXY
A 3	#5	6.83	32	17		3.00	0.83	3.00									EPOXY
A 4	#5	29.00	22	—													EPOXY
A 5	#5	9.00	44	—													EPOXY
A 6	#5	14.00	26	—													EPOXY
A 7	#5	5.00	44	20		1.50	2.00	1.50									EPOXY
A 8	#5	9.50	8	—													EPOXY
A 9	#5	3.00	8	—													EPOXY

SECTION SUMMARY TOTAL WEIGHT (lbs):

ITEM #	DESCRIPTION	#3	#4	#5	#6	#7	#8	#9	#10	#11	#14	#18	TOTAL
544	REINFORCING STEEL	0	0	0	0	0	0	0	0	0	0	0	0
544.11	MECH. CONNECTOR	0	0	0	0	0	0	0	0	0	0	0	0
544.2	EPOXY COATED	0	0	3360	0	0	0	0	0	0	0	0	3360
544.21	EPOXY MECH. CON.	0	0	0	0	0	0	0	0	0	0	0	0

Pier Footing BRIDGE SHEET 12 OF 15

Mark	Size	Length	# Pieces	Type	A	B	C	D	E	F	G	H	J	K	R	O	Coating
PF 1	#8	14.00	82	17		2.00	10.00	2.00									
PF 2	#8	13.00	12	S4	2.50	1.50	5.00	1.50			2.50						
PF 3	#8	9.68	56	N3		2.00	1.18	6.50						0.00	0.67		EPOXY
PF 4	#8	14.68	68	N3		2.00	1.18	11.50						0.00	0.67		EPOXY
PF 5	#8	20.00	44	17		2.00	16.00	2.00									
PF 6	#6	8.16	48	S4	1.50	1.83	1.50	1.83			1.50						

SECTION SUMMARY TOTAL WEIGHT (lbs):

ITEM #	DESCRIPTION	#3	#4	#5	#6	#7	#8	#9	#10	#11	#14	#18	TOTAL
544	REINFORCING STEEL	0	0	0	588	0	5831	0	0	0	0	0	6420
544.11	MECH. CONNECTOR	0	0	0	0	0	0	0	0	0	0	0	0
544.2	EPOXY COATED	0	0	0	0	0	4113	0	0	0	0	0	4113
544.21	EPOXY MECH. CON.	0	0	0	0	0	0	0	0	0	0	0	0

Pier Stem BRIDGE SHEET 13 OF 15

Mark	Size	Length	# Pieces	Type	A	B	C	D	E	F	G	H	J	K	R	O	Coating
PS 1	#7	21.25	28	—													EPOXY
PS 2	#6	15.75	34	—													EPOXY
PN 1	#7	24.50	28	—													EPOXY
PN 2	#6	19.00	34	—													EPOXY
P 3	#5	5.33	30	17		1.50	2.33	1.50									EPOXY
P 4	#6	14.00	98	—													EPOXY
P 5	#5	4.08	245	N5		2.58	0.75	0.75									EPOXY
P 6	#6	5.58	98	17		1.50	2.58	1.50									EPOXY

SECTION SUMMARY TOTAL WEIGHT (lbs):

ITEM #	DESCRIPTION	#3	#4	#5	#6	#7	#8	#9	#10	#11	#14	#18	TOTAL
544	REINFORCING STEEL	0	0	0	0	0	0	0	0	0	0	0	0
544.11	MECH. CONNECTOR	0	0	0	0	0	0	0	0	0	0	0	0
544.2	EPOXY COATED	0	0	1209	4657	2618	0	0	0	0	0	0	8484
544.21	EPOXY MECH. CON.	0	0	0	0	0	0	0	0	0	0	0	0

GRAND SUMMARY TOTAL WEIGHT (lbs):

ITEM #	DESCRIPTION	#3	#4	#5	#6	#7	#8	#9	#10	#11	#14	#18	TOTAL
544	REINFORCING STEEL	0	0	2495	588	0	5831	0	0	0	0	0	8915
544.11	MECH. CONNECTOR	0	0	0	0	0	0	0	0	0	0	0	0
544.2	EPOXY COATED	0	0	5830	4657	2618	4113	0	0	0	0	0	17218
544.21	EPOXY MECH. CON.	0	0	0	0	0	0	0	0	0	0	0	0

STANDARD INDUSTRY BENDS, STIRRUPS, & TIES

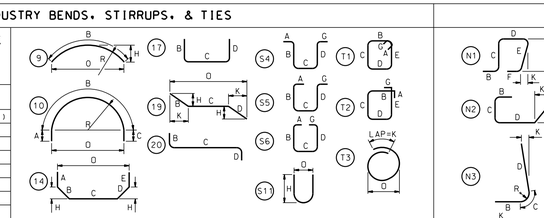
RECOMMENDED END HOOKS ALL GRADES (IN)

BAR SIZE	D Φ	180° HOOKS A,G	180° HOOKS J	90° HOOKS A,G
#3	2 1/4	5	3	6
#4	3	6	4	8
#5	3 3/4	7	5	10
#6	4 1/2	8	6	12
#7	5 1/4	10	7	14
#8	6	11	8	16
#9	9 1/2	15	11 3/4	19
#10	10 3/4	17	13 1/4	22
#11	12	19	14 3/4	24
#14	18 1/4	27	21 3/4	31

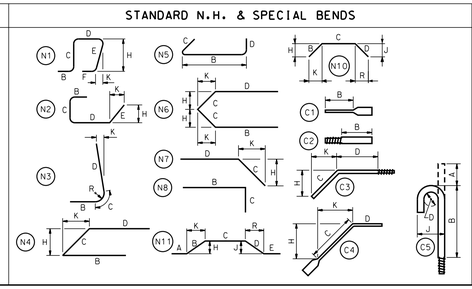
STIRRUP & TOE HOOK DIMENSIONS ALL GRADES (IN)

BAR SIZE	D Φ	90° HOOKS A,G	135° HOOKS A,G	135° HOOKS H(appr)
#3	1 1/2	4	4	2 1/2
#4	2	4 1/2	4 1/2	3
#5	2 1/2	6	5 1/2	3 3/4
#6	4 1/2	12	7 3/4	4 1/2
#7	5 1/4	14	9	5 1/4
#8	6	16	10 1/4	6

NOTE: D = finished inside bend of hook. For additional data on standard bar bends not shown on this sheet see current CRSI Manual.



STANDARD N.H. & SPECIAL BENDS



NOTES:
1. FIGURES IN CIRCLE SHOW TYPE OF BEND.
2. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING #18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET - STEEL BARS FOR CONCRETE REINFORCEMENT".AASHTO M 31-94 (ASTM A615).
3. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS AND OTHER STANDARD PRACTICE REFER TO THE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
4. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
5. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180° AND 135° HOOKS.
6. "J" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHEN NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE STANDARD HOOKS ARE TO BE USED.
7. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
8. WHERE SLOPE DIFFERS FROM 45° DIMENSIONS "H" AND "K" MUST BE SHOWN.

▲ DENOTES BARS TO BE CUT IN FIELD, AS REQUIRED.
Δ DENOTES BARS TO BE BENT IN FIELD.

ASTM STANDARD REINFORCING BARS

BAR SIZE	WEIGHT LBS/FT	DIAM IN	CROSS SECT AREA IN²
#3	0.376	0.375	0.11
#4	0.668	0.500	0.20
#5	1.043	0.625	0.31
#6	1.502	0.750	0.44
#7	2.044	0.875	0.60
#8	2.670	1.000	0.79
#9	3.400	1.128	1.00
#10	4.303	1.270	1.27
#11	5.313	1.410	1.56
#14	7.650	1.693	2.25
#18	13.600	2.257	4.00

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
XX	rebar	AS NOTED

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY BRIDGE NO. 128\061 STATE PROJECT 10309p

LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

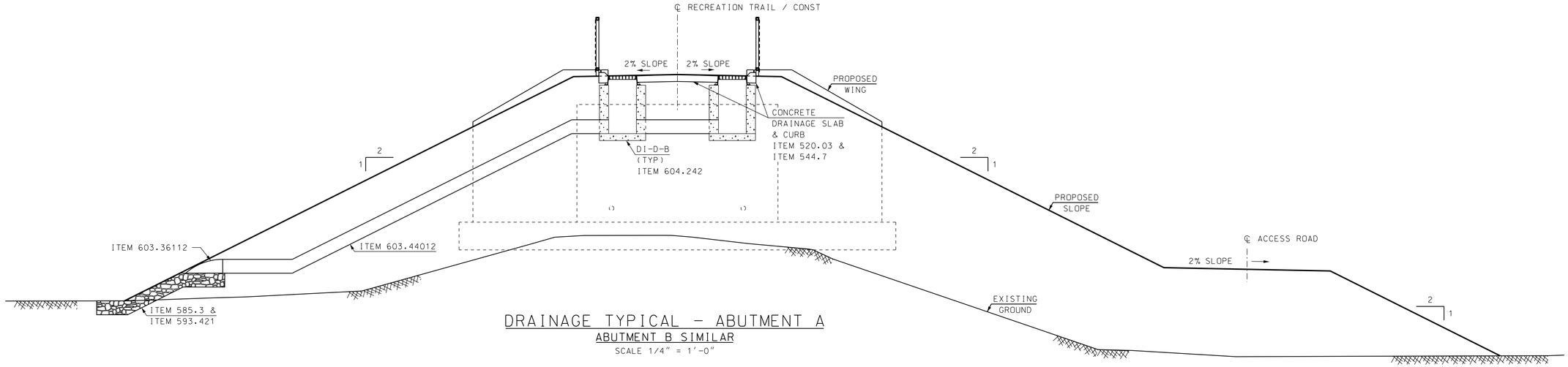
REINFORCING SCHEDULE

BRIDGE SHEET 14 OF 15

FILE NUMBER 130-1-2

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	JAS	9/15	CHECKED	JER	9/15
	DRAWN	JAS	9/15	CHECKED	JER	9/15
	QUANTITIES	JAS	9/15	CHECKED	JER	9/15

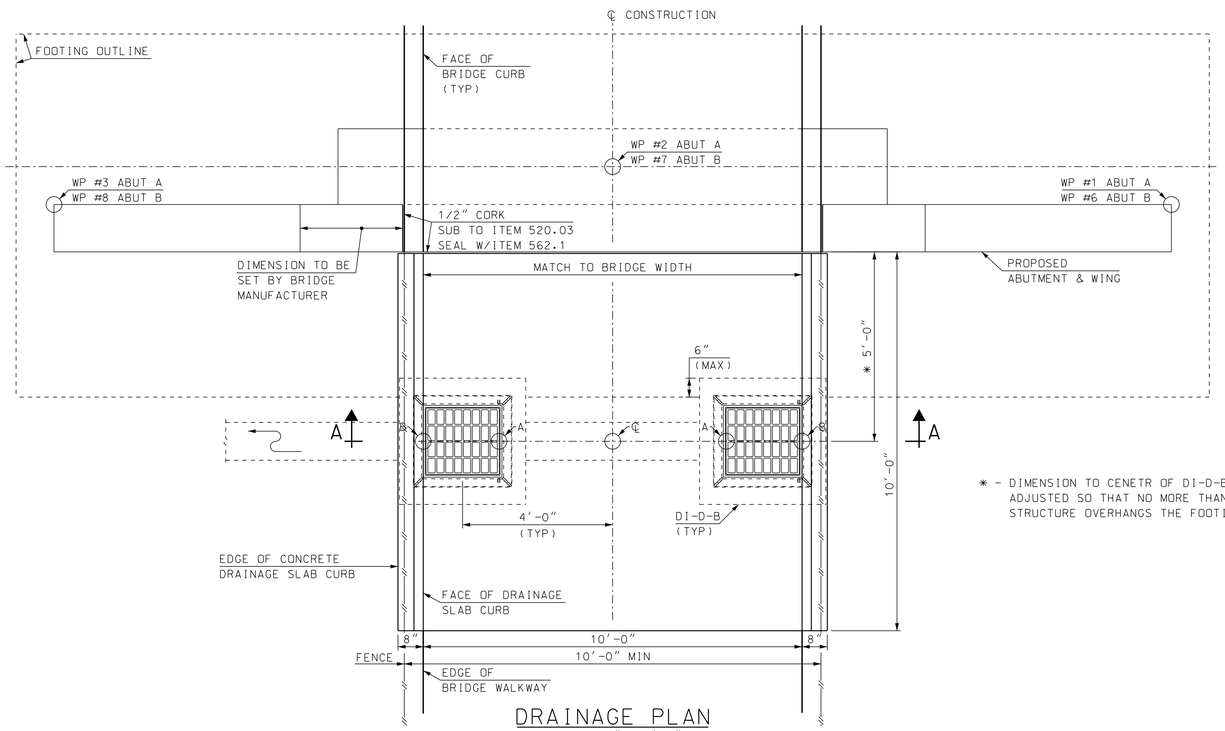
ISSUE DATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
REV. DATE	----------	19	34



DRAINAGE TYPICAL - ABUTMENT A

ABUTMENT B SIMILAR

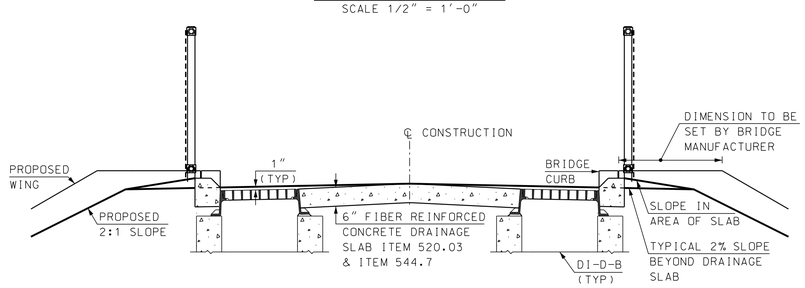
SCALE 1/4" = 1'-0"



* - DIMENSION TO CENETR OF DI-D-B SHOULD BE ADJUSTED SO THAT NO MORE THAN 6" OF THE STRUCTURE OVERHANGS THE FOOTING.

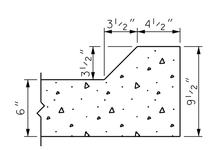
DRAINAGE PLAN

SCALE 1/2" = 1'-0"



SECTION A-A

SCALE 1/2" = 1'-0"



CURB DETAIL

SCALE 1 1/2" = 1'-0"

NOTES:

(1) PILASTER LENGTH TO BE SET BY BRIDGE MANUFACTURER. PILASTER LENGTH TO ACCOMIDATE A 1/2" CORK & SILCONE JOINT BETWEEN BACK FACE OF BRIDGE CURB AND PILASTER.

(2) SET DRAINAGE SLAB FACE OF CURB TO FACE OF CURB WIDTH AT BACKWALL TO THAT OF BRIDGE FACE OF CURB TO FACE OF CURB WIDTH.

(3) EMBANKMENT CHAIN LINK FENCE MUST TRANSITION SMOOTHLY TO BRIDGE CHAINLINK FENCE. EMBANKMENT CHAIN LINK FENCE MUST PROVIDE A MINIMUM TRAIL WIDTH OF 10'-0".

(4) PLACE POST ASSEMBLIES TO AVOID DROP INLETS.

(1) CONST @ STA 204+72.75.
RT 4'-0" DI-D-B, INV OUT 479.817
7'-0" x 12" PLASTIC PIPE (SMOOTH INTERIOR)
LT 4'-0" DI-D-B, INV IN 479.817, INV OUT 479.817
32'-0" x 12" PLASTIC PIPE (SMOOTH INTERIOR) DOWN SLOPE, INV OUT 470.000
6'-0" x 12" PLASTIC PIPE (SMOOTH INTERIOR) BETWEEN BASINS
12" ALUMINIZED STEEL END SECTION
(FOR GRATE ELEVATIONS SEE CHART)

(2) CONST @ STA 208+27.25.
RT 4'-0" DI-D-B, INV OUT 483.767
7'-0" x 12" PLASTIC PIPE (SMOOTH INTERIOR)
LT 4'-0" DI-D-B, INV IN 483.767, INV OUT 483.767
36'-0" x 12" PLASTIC PIPE (SMOOTH INTERIOR) DOWN SLOPE, INV OUT 471.000
6'-0" x 12" PLASTIC PIPE (SMOOTH INTERIOR) BETWEEN BASINS
12" ALUMINIZED STEEL END SECTION
(FOR GRATE ELEVATION SEE CHART)

SEE NHDOT HIGHWAY STANDARD SHEETS DR-1 & DR-2 FOR ADDITIONAL DRAINAGE GUIDANCE

GRATE ELEVATIONS

	POINT B LT 5'-0"	POINT A LT 3'-0"	FINISHED ℄ ELEV	POINT A RT 3'-0"	POINT B RT 5'-0"
STA 204+72.75	483.984	484.024	484.167	484.024	483.984
STA 208+27.25	487.934	487.974	488.117	487.974	487.934

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN KEENE - SWANZEY | BRIDGE NO. 128\061 | STATE PROJECT 10309p

LOCATION MULTI-USE-TRAIL OVER N.H. RTE 12\101

DRAINAGE

REVISIONS AFTER PROPOSAL	BY	DATE		BY	DATE
DESIGNED	JAS	8/15	CHECKED	KFD	8/15
DRAWN	JAS	8/15	CHECKED	KFD	8/15
QUANTITIES	JAS	8/15	CHECKED	JER	8/15
ISSUE DATE			FEDERAL PROJECT NO.	SHEET NO.	
REV. DATE			----------	20	

BRIDGE SHEET 15 OF 15

FILE NUMBER 130-1-2

TOTAL SHEETS 34

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
BRC\DESIGN	10309p drainage	AS NOTED

SHEET TOTALS			
COMMON EXCAV.	— C.Y.	ROCK EXCAV.	— C.Y.
FILL	— C.Y.	MUCK EXCAV.	— C.Y.

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	21	34

SUBDIRECTORY
BRC\x-sec

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION

		DATE
SDR PROCESSED		DATE
NEW DESIGN	JAS	DATE 9/2015
SHEET CHECKED	JAH	DATE 9/2015
AS BUILT DETAILS		DATE

psectmc2m NATIVE 4-30-15.dgn MX 9/22/2015 9:50:12 AM "n18smg"

SHEET TOTALS			
COMMON EXCAV.	– C.Y.	ROCK EXCAV.	– C.Y.
FILL	– C.Y.	MUCK EXCAV.	– C.Y.

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	22	34

SDR PROCESSED		DATE
NEW DESIGN	JAS	DATE 9/2015
SHEET CHECKED	JAH	DATE 9/2015
AS BUILT DETAILS		DATE

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

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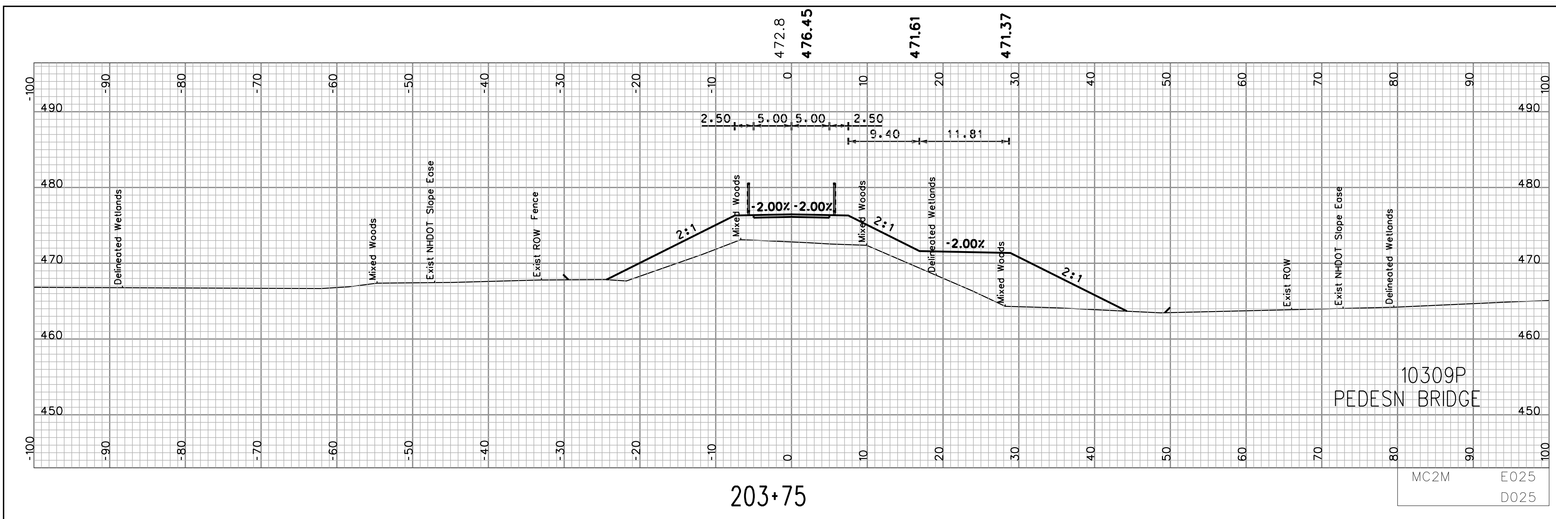
psectmc2m NATIVE 4-30-15.dgn MX 9/22/2015 9:50:12 AM "n18smg"

SDR PROCESSED		DATE	
NEW DESIGN	JAS	DATE	9/2015
SHEET CHECKED	JAH	DATE	9/2015
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION



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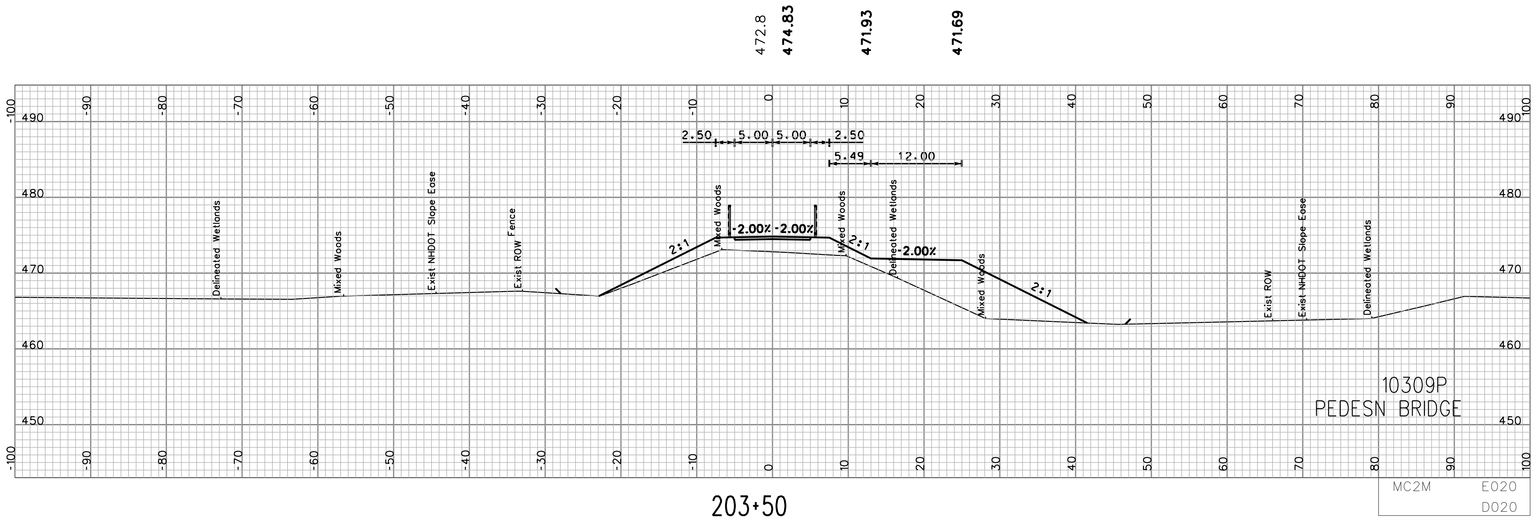

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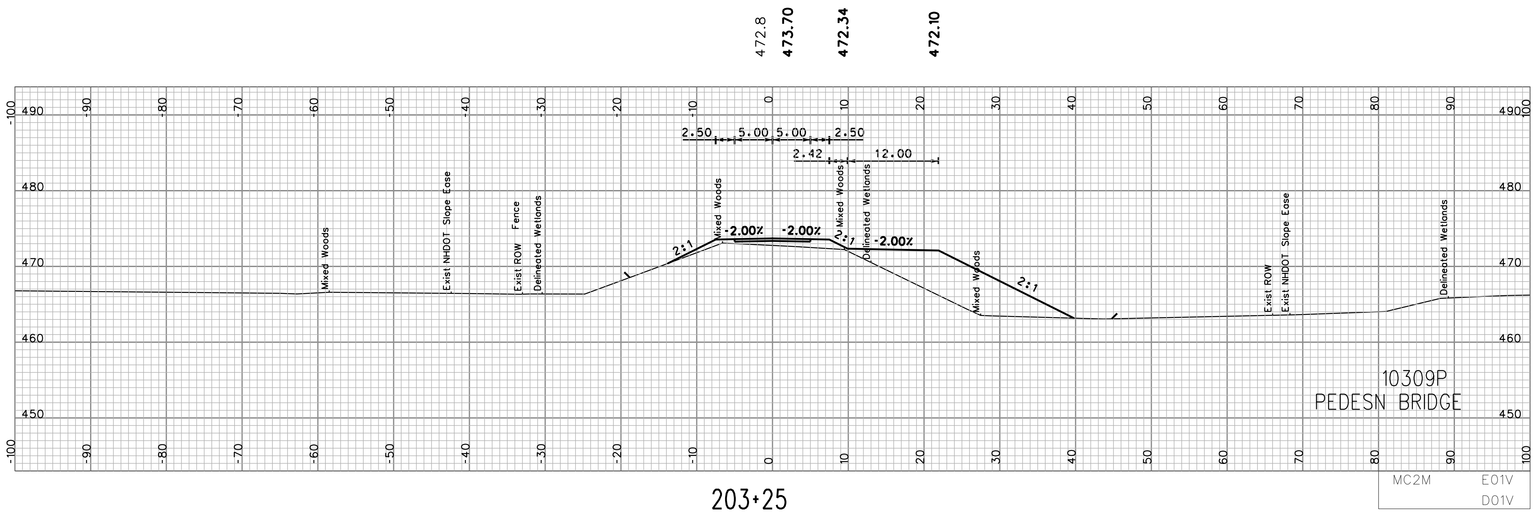

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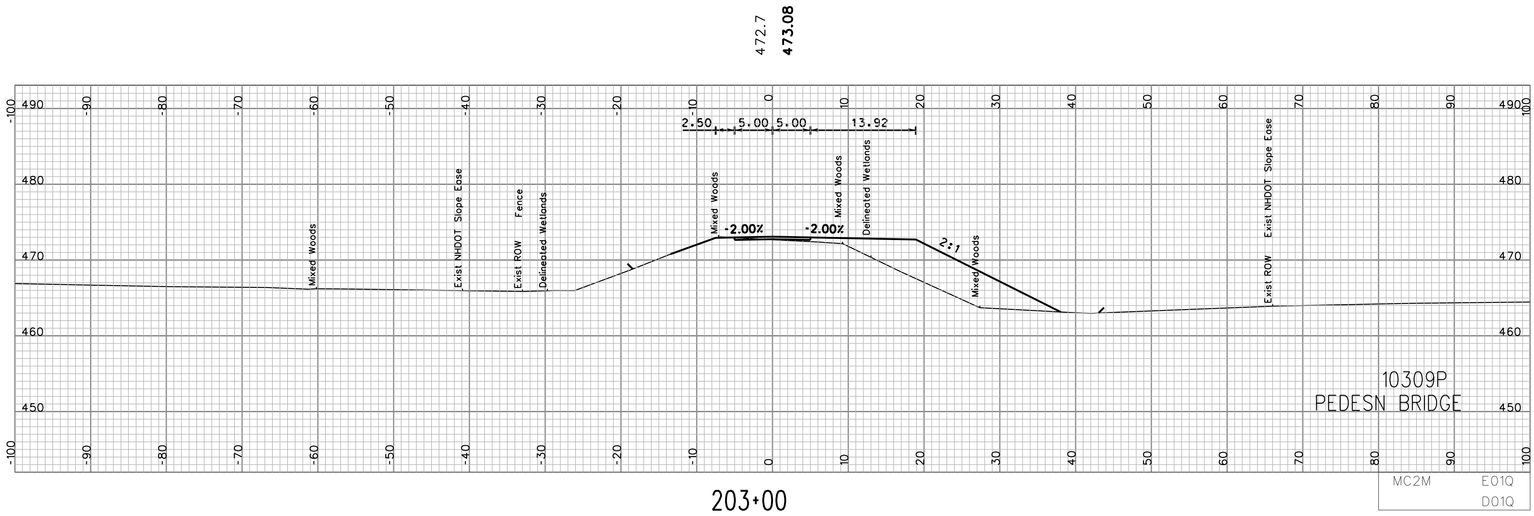


203+00

SHEET TOTALS			
COMMON EXCAV.	– C.Y.	ROCK EXCAV.	– C.Y.
FILL	– C.Y.	MUCK EXCAV.	– C.Y.

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	23	34

SHEET TOTALS			
COMMON EXCAV.	— C.Y.	ROCK EXCAV.	— C.Y.
FILL	— C.Y.	MUCK EXCAV.	— C.Y.

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	24	34

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

		DATE
SDR PROCESSED		
NEW DESIGN	JAS	DATE 9/2015
SHEET CHECKED	JAT	DATE 9/2015
AS BUILT DETAILS		DATE

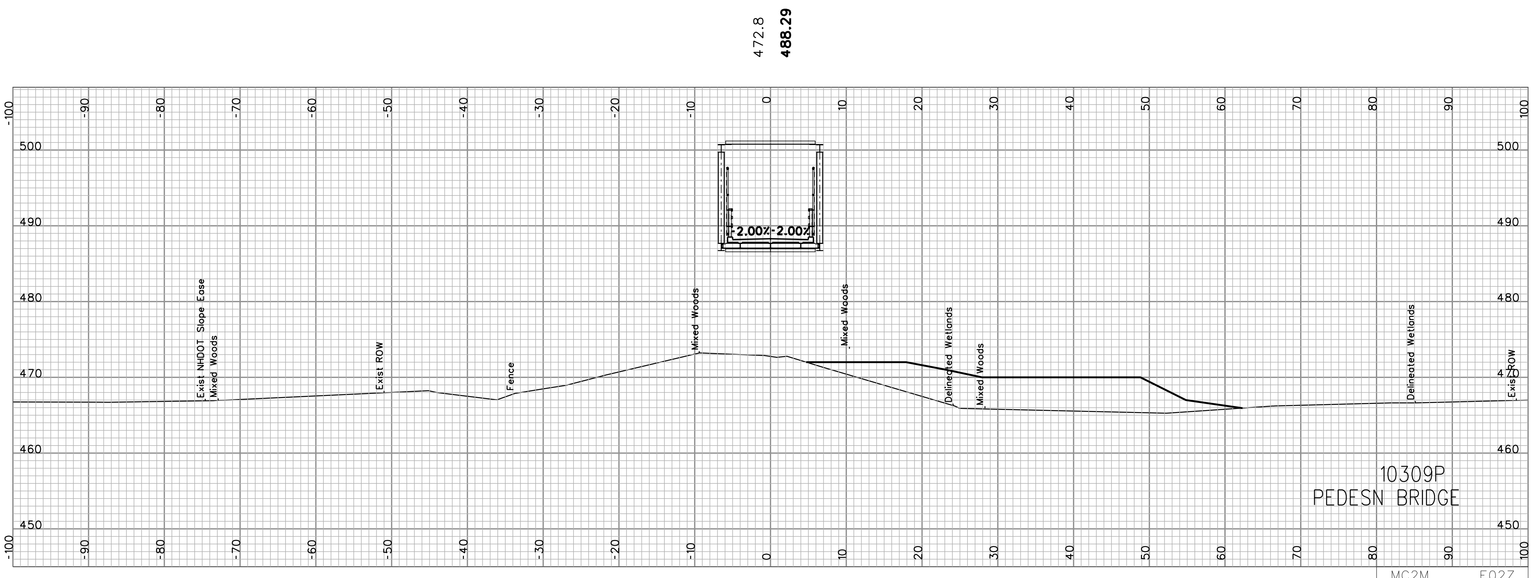
psectmc2m NATIVE 4-30-15.dgn MX 9/22/2015 9:50:13 AM "n18smg"

psectmc2m NATIVE 4-30-15.dgn MIX 9/22/2015 9:50:13 AM "nt8smg"

SDR PROCESSED		DATE	
NEW DESIGN	JAS	DATE	9/2105
SHEET CHECKED	JAT	DATE	9/2015
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION



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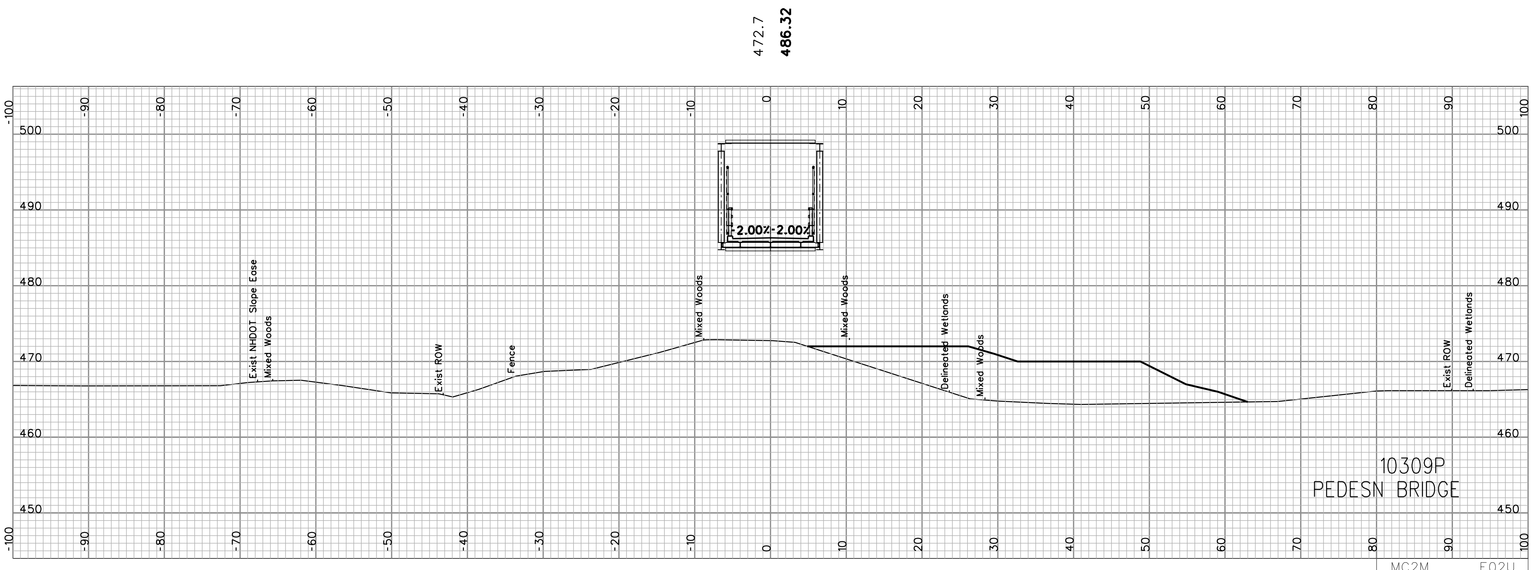

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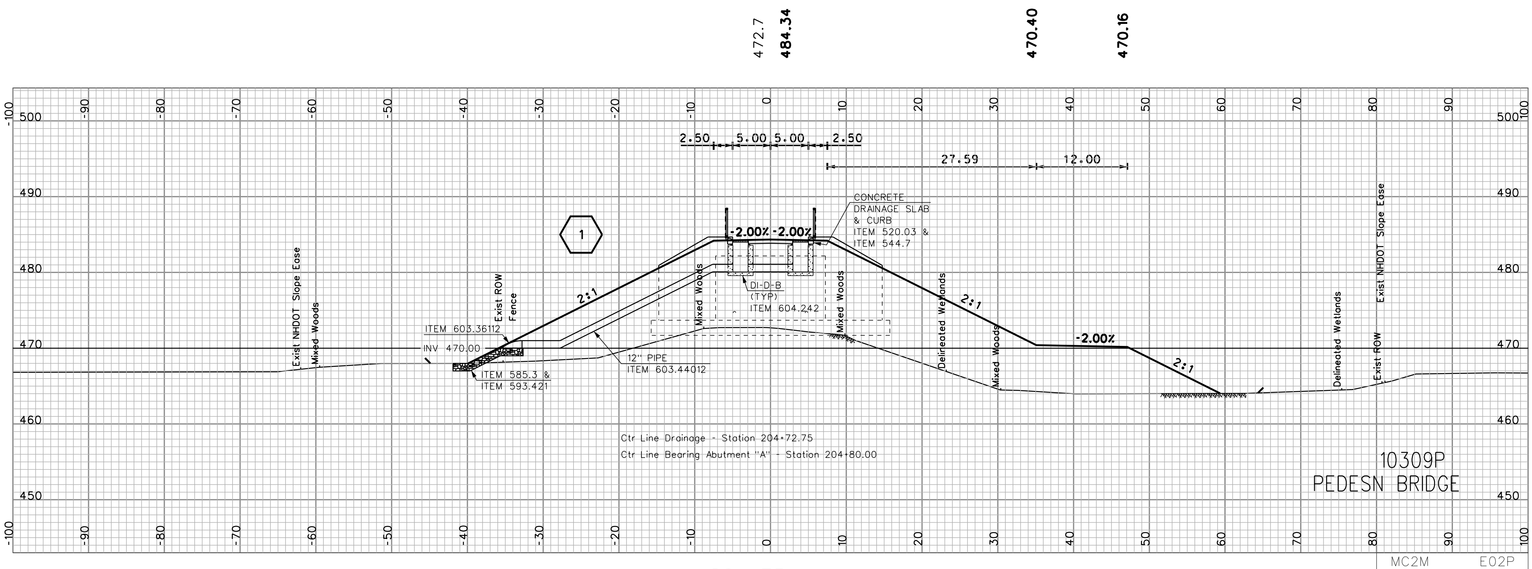


204+75

SHEET TOTALS			
COMMON EXCAV. – C.Y.		ROCK EXCAV. – C.Y.	
FILL – C.Y.		MUCK EXCAV. – C.Y.	
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	25	34

SHEET TOTALS			
COMMON EXCAV.	— C.Y.	ROCK EXCAV.	— C.Y.
FILL	— C.Y.	MUCK EXCAV.	— C.Y.

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	26	34

REVISIONS AFTER PROPOSAL				
NUMBER	DATE	STATION	STATION	DESCRIPTION

SDR PROCESSED	JAS	DATE 9/2015
NEW DESIGN	JAS	DATE 9/2015
SHEET CHECKED	JAH	DATE 9/2015
AS BUILT DETAILS		DATE

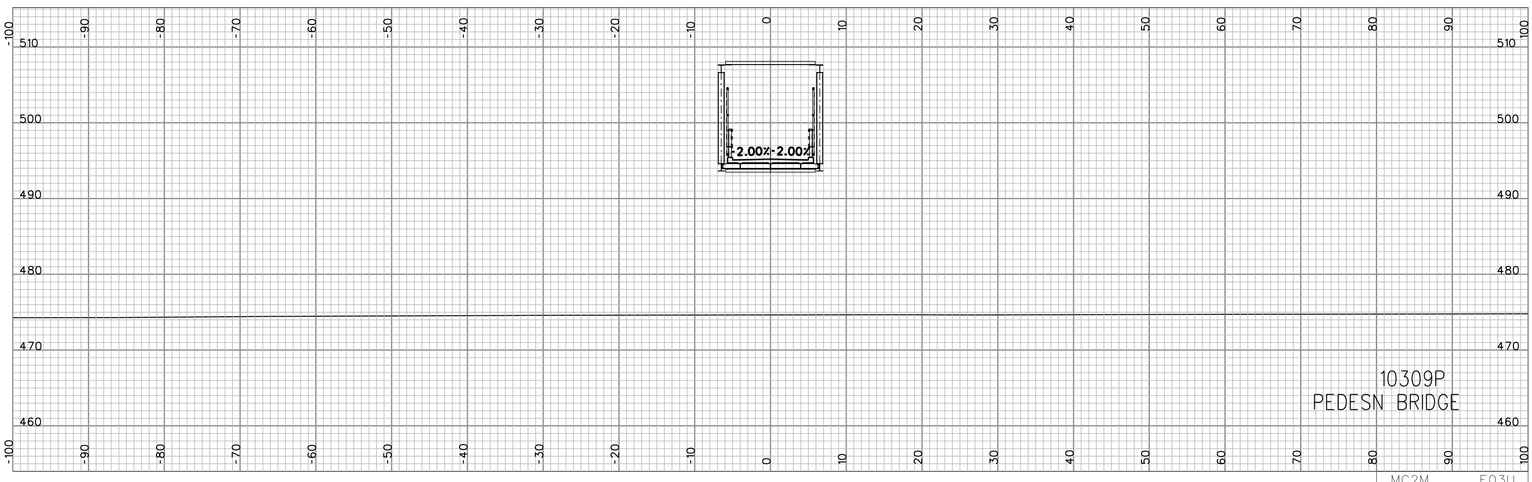
psectmc2m NATIVE 4-30-15.dgn MX 9/22/2015 9:50:13 AM "n18smg"

psectmc2m NATIVE 4-30-15.dgn MIX 9/22/2015 9:50:13 AM "n18smg"

SDR PROCESSED		DATE	
NEW DESIGN	JAS	DATE	9/2015
SHEET CHECKED	JAH	DATE	9/2015
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL				
NUMBER	DATE	STATION	STATION	DESCRIPTION

474.6
495.20



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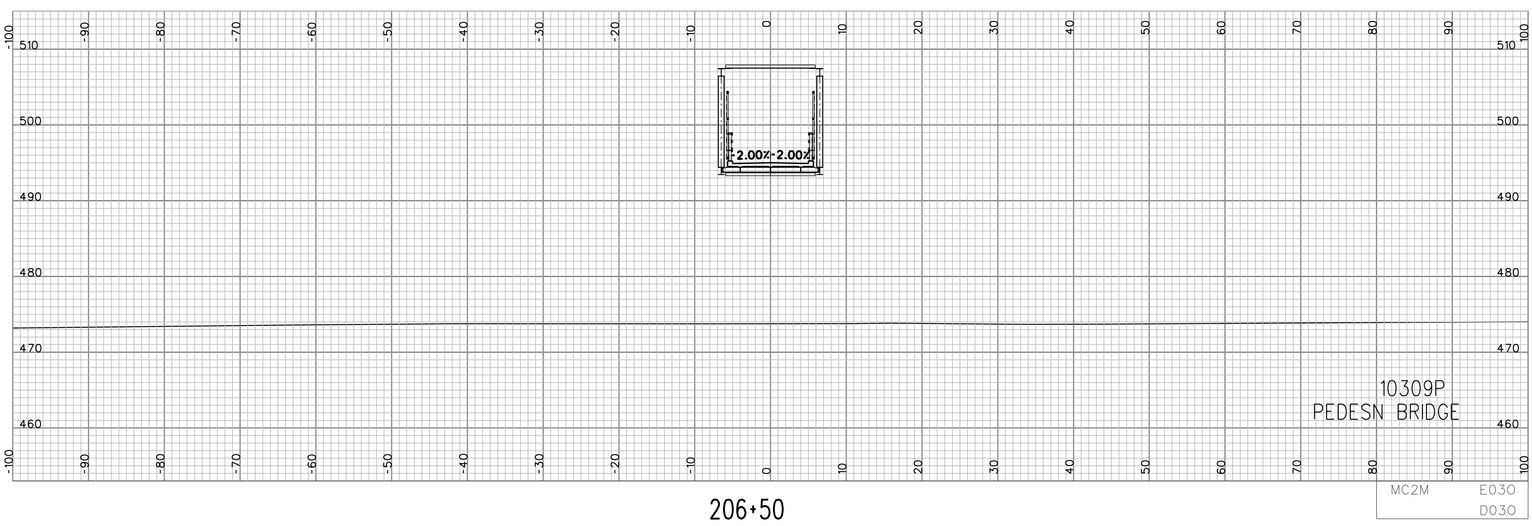
473.8
495.01



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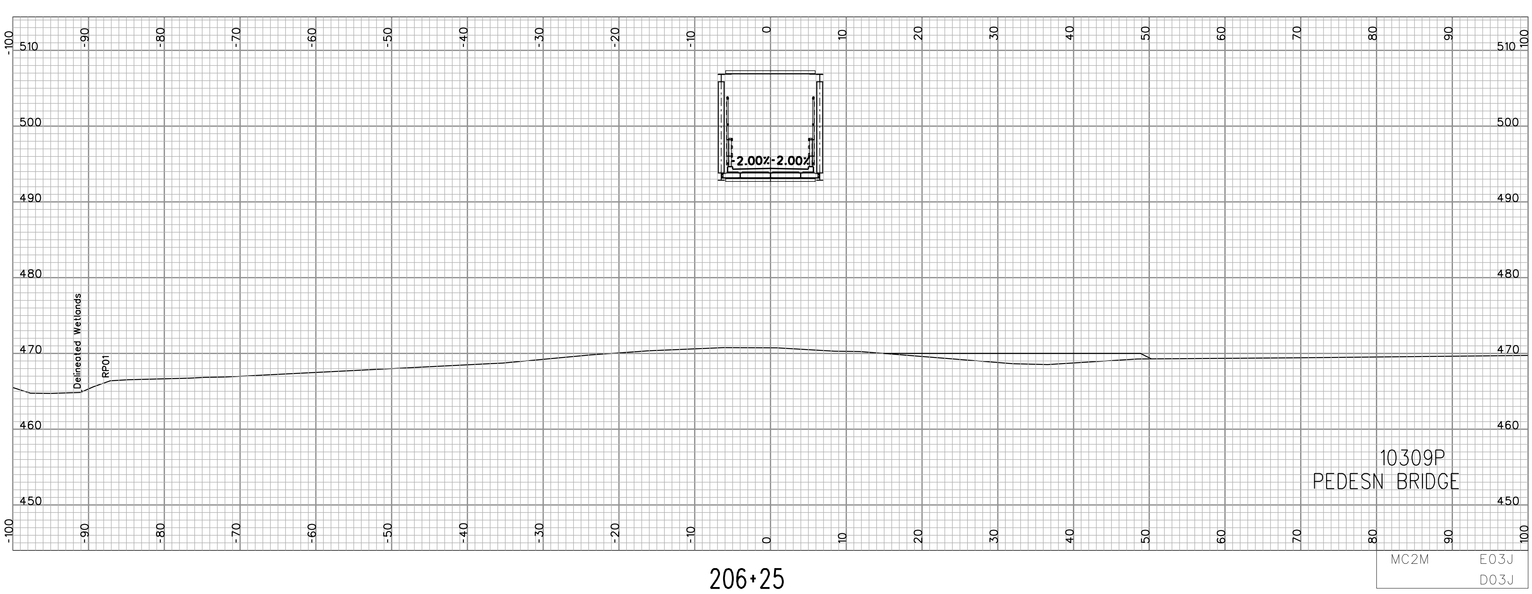
470.7
494.41



206+25

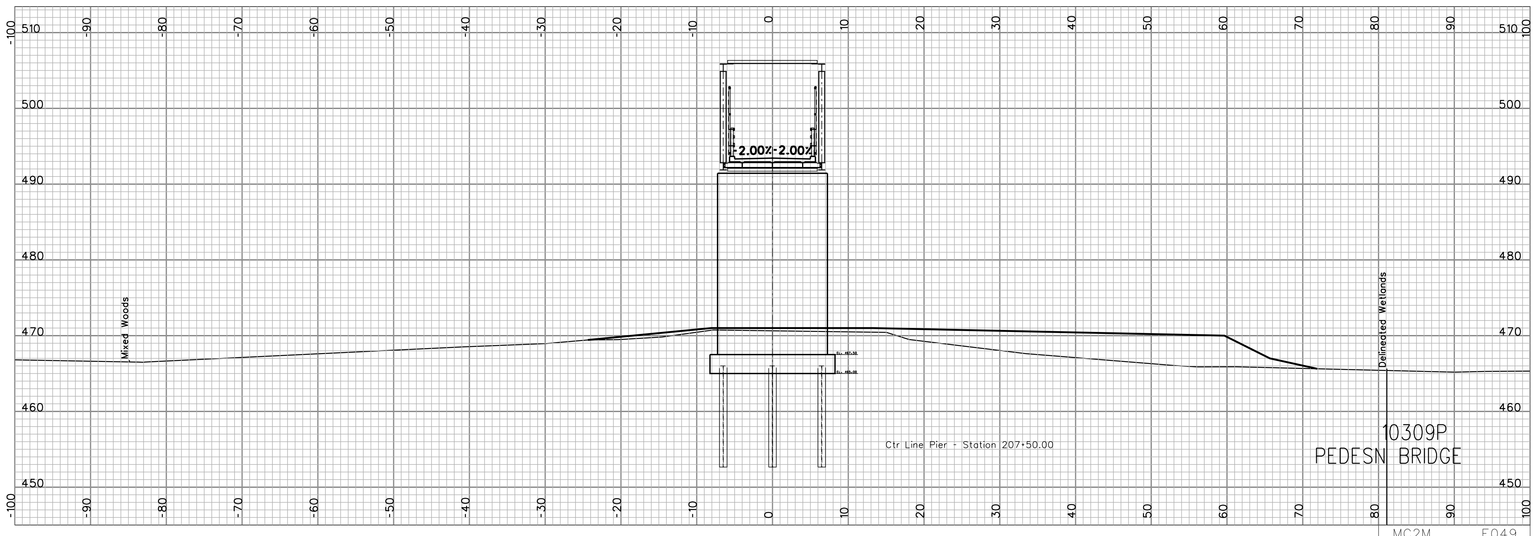
SHEET TOTALS			
COMMON EXCAV. – C.Y.		ROCK EXCAV. – C.Y.	
FILL – C.Y.		MUCK EXCAV. – C.Y.	
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	27	34

psectmc2m NATIVE 4-30-15.dgn MX 9/22/2015 9:50:14 AM "nt8smg"

SDR PROCESSED		DATE	
NEW DESIGN	JAS	DATE	9/2015
SHEET CHECKED	JAH	DATE	9/2015
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL				
NUMBER	DATE	STATION	STATION	DESCRIPTION

470.6
493.43



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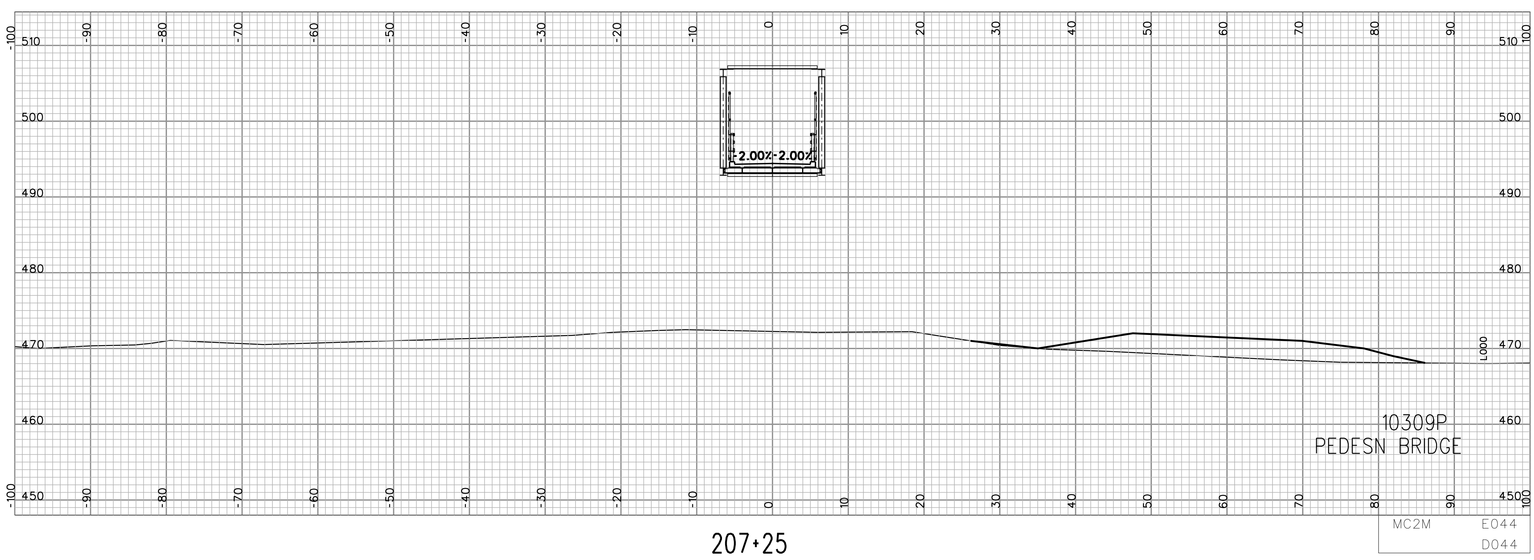
472.2
494.41



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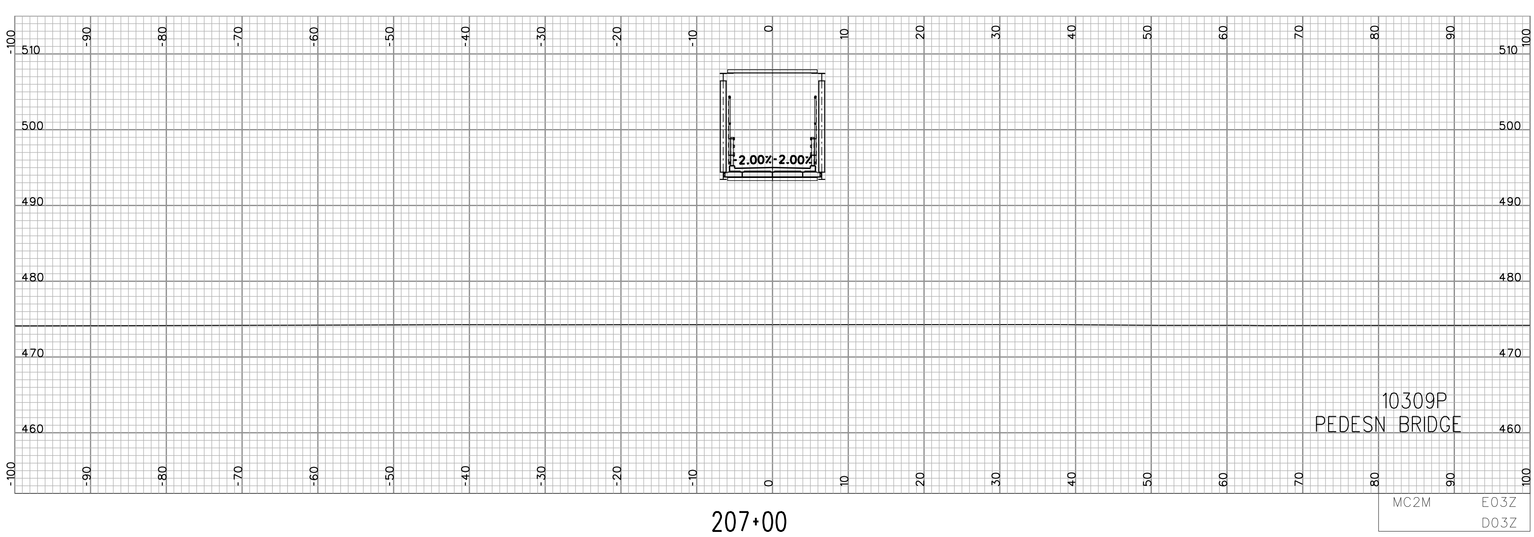
474.3
495.01



207+00

SHEET TOTALS			
COMMON EXCAV.	– C.Y.	ROCK EXCAV.	– C.Y.
FILL	– C.Y.	MUCK EXCAV.	– C.Y.

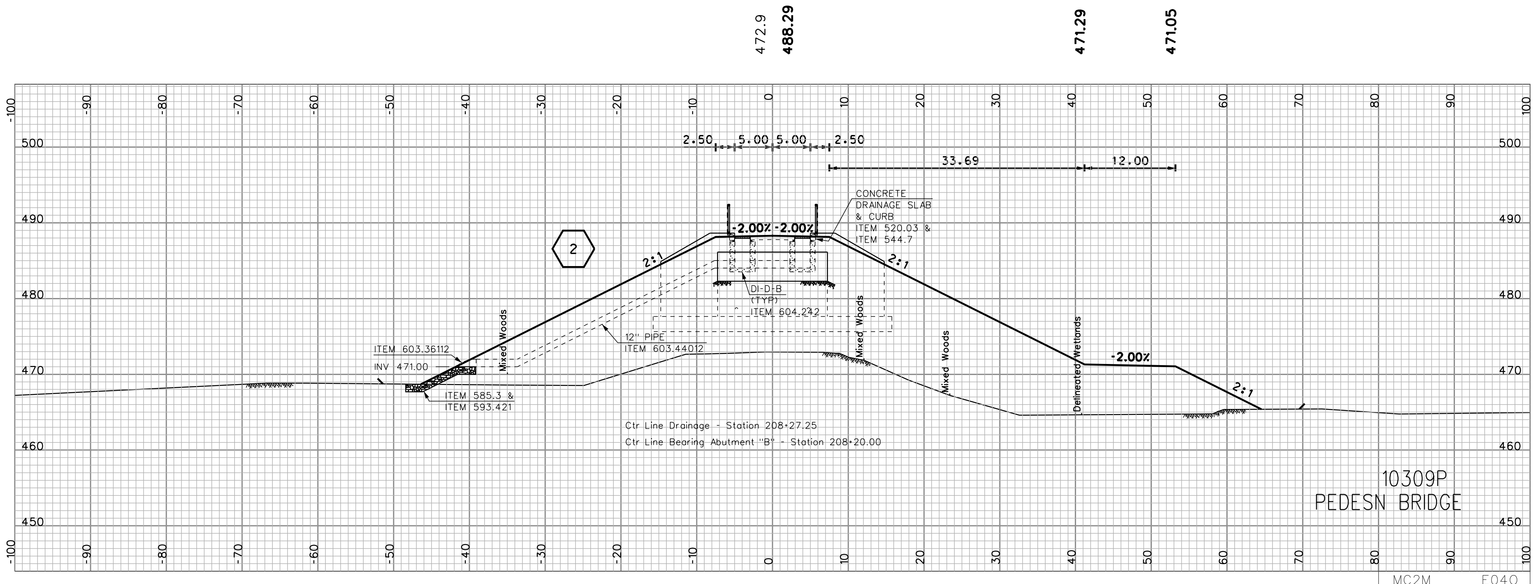
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	28	34

psectmc2m NATIVE 4-30-15.dgn MX 9/22/2015 9:50:14 AM "n18smg"

SDR PROCESSED		DATE	
NEW DESIGN	JAS	DATE	9/2015
SHEET CHECKED	JAH	DATE	9/2015
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION



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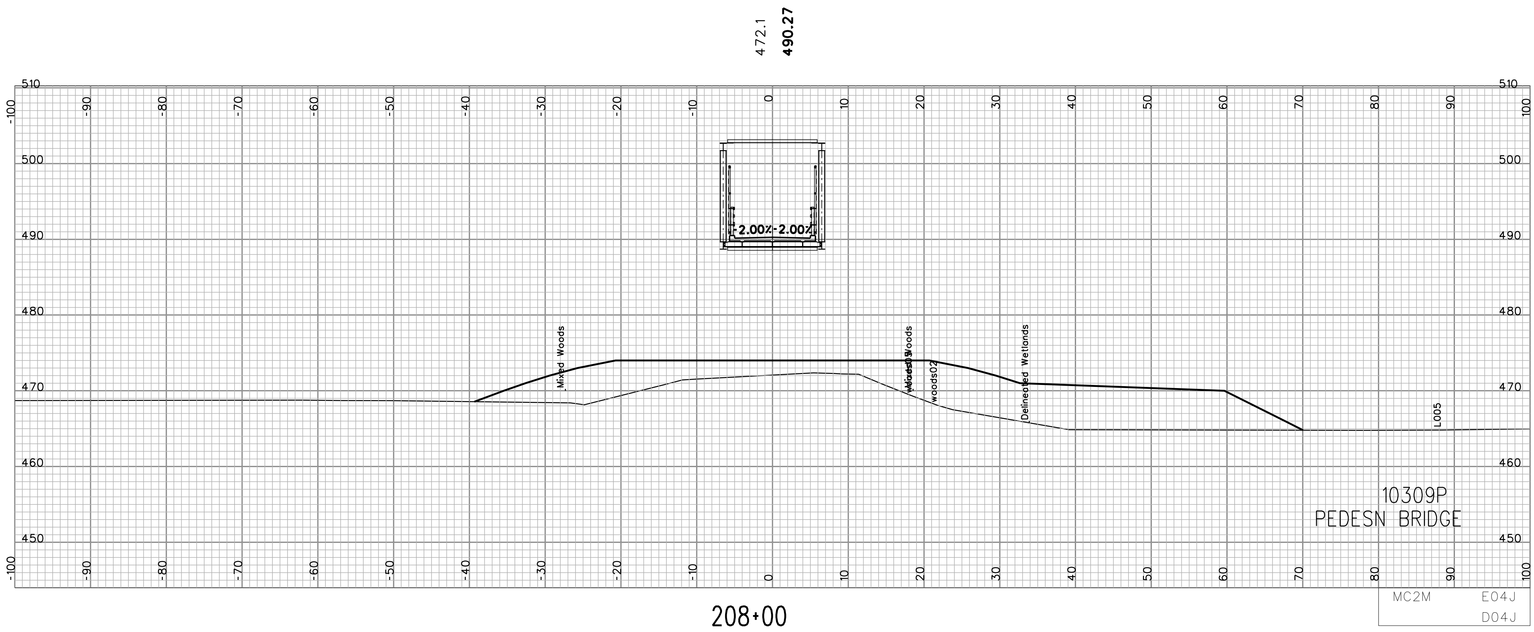

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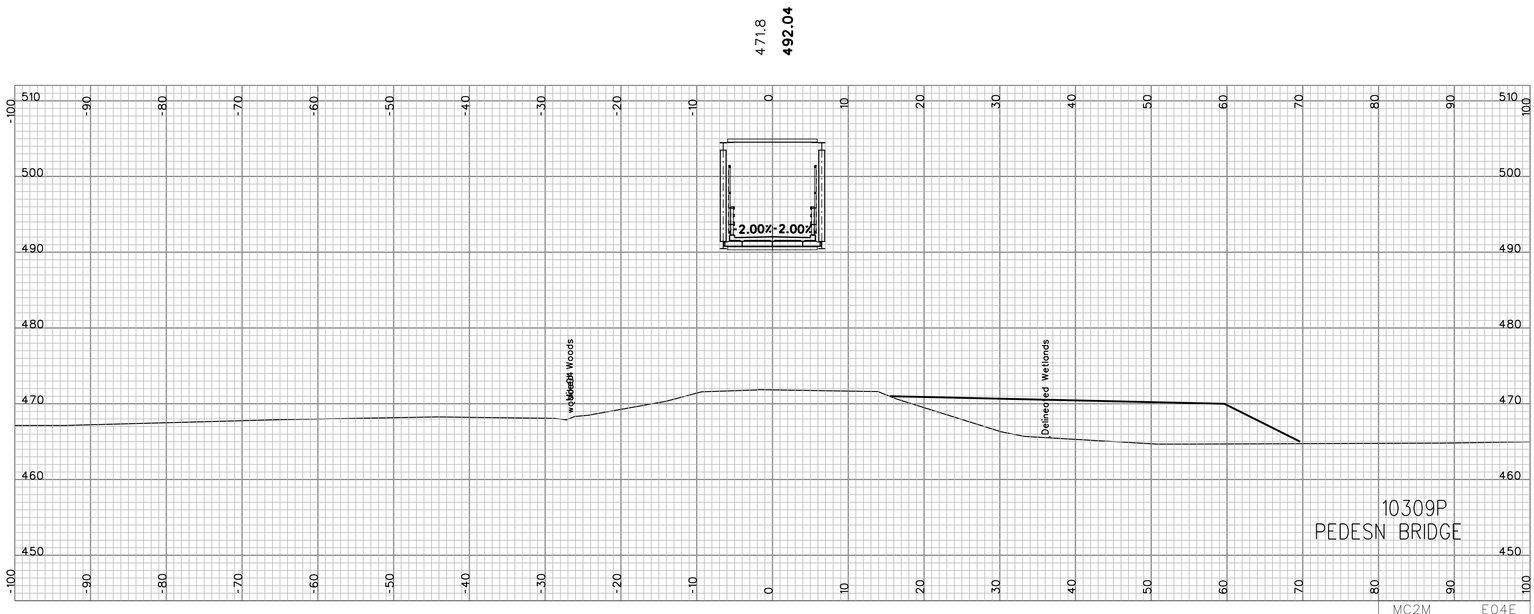


207+75

SHEET TOTALS			
COMMON EXCAV.	– C.Y.	ROCK EXCAV.	– C.Y.
FILL	– C.Y.	MUCK EXCAV.	– C.Y.

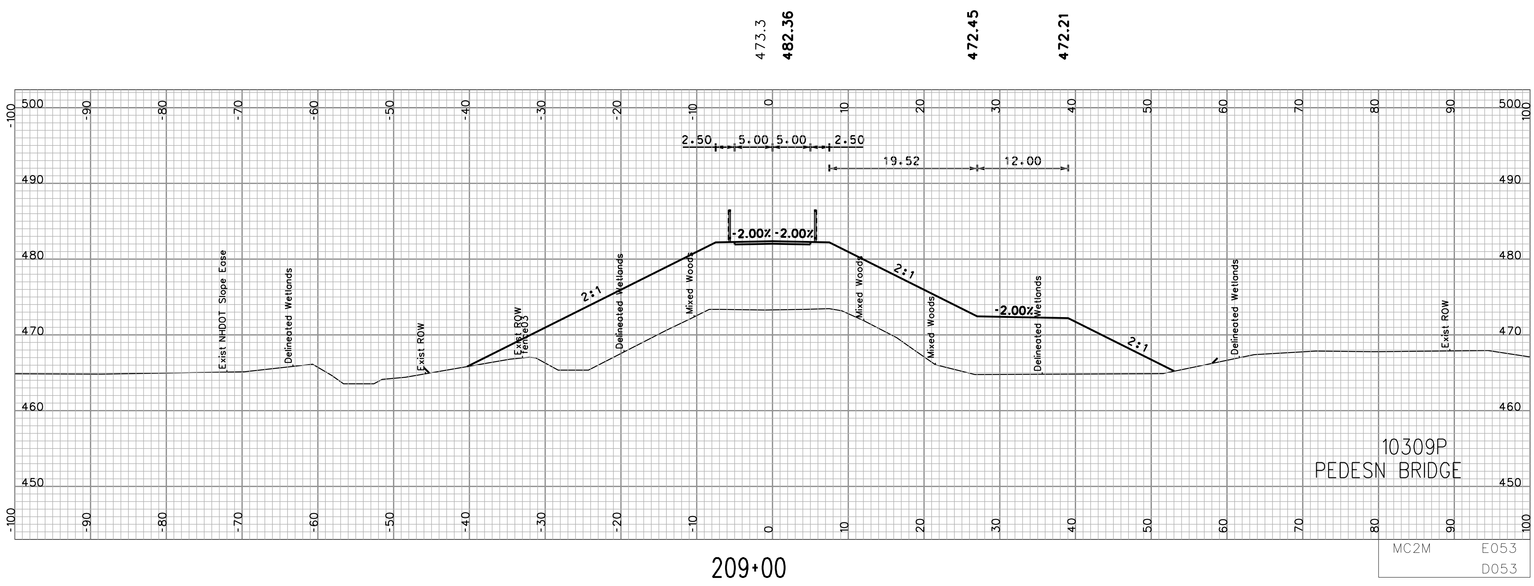
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	29	34

psectmc2m NATIVE 4-30-15.dgn MX 9/22/2015 9:50:14 AM "n18smg"

SDR PROCESSED		DATE	
NEW DESIGN	JAS	DATE	9/2015
SHEET CHECKED	JAH	DATE	9/2015
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION



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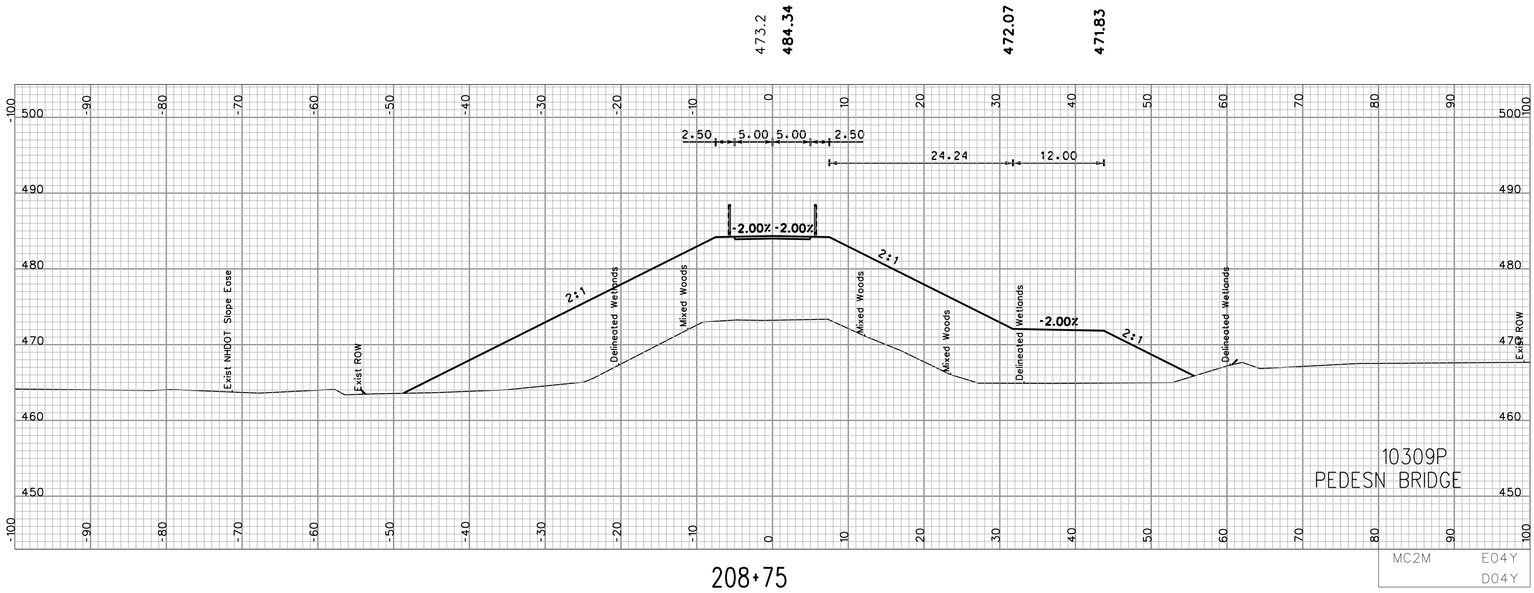

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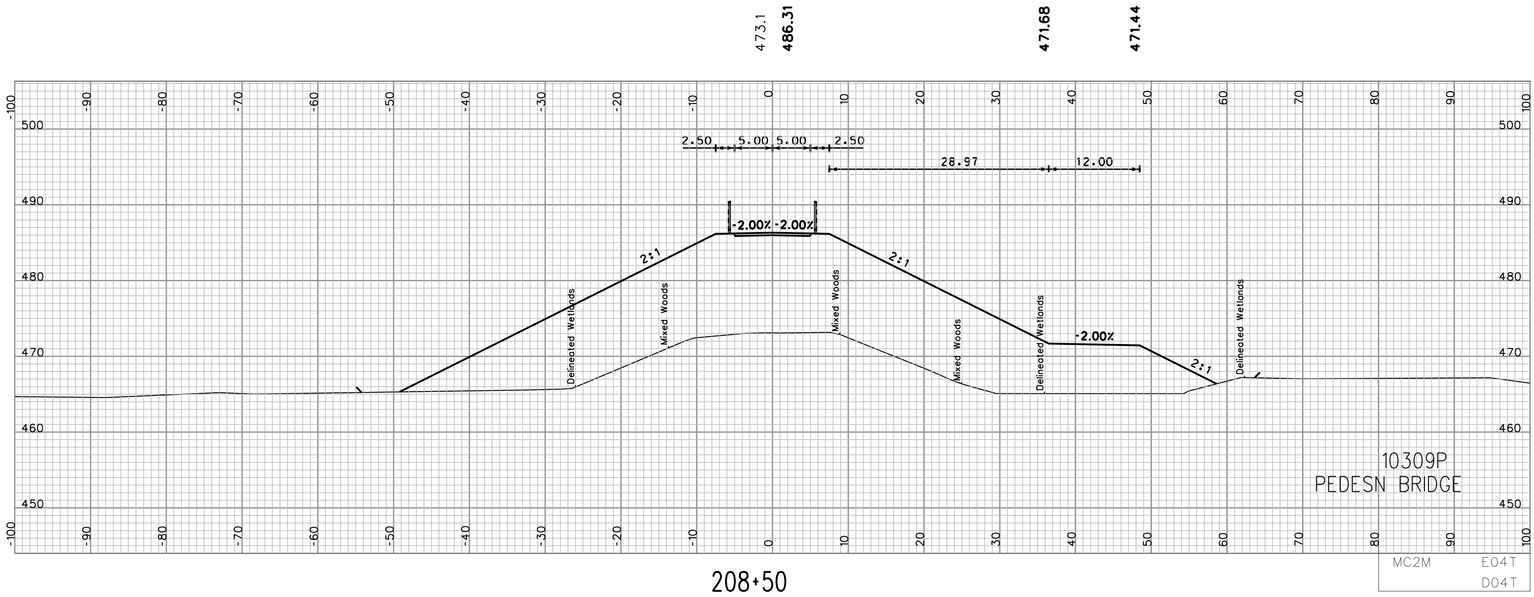


208+50

SHEET TOTALS			
COMMON EXCAV. – C.Y.		ROCK EXCAV. – C.Y.	
FILL – C.Y.		MUCK EXCAV. – C.Y.	
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	30	34

SHEET TOTALS			
COMMON EXCAV.	- C.Y.	ROCK EXCAV.	- C.Y.
FILL	- C.Y.	MUCK EXCAV.	- C.Y.

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	31	34

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

		DATE
SDR PROCESSED		
NEW DESIGN	JAS	DATE 9/2015
SHEET CHECKED	JAH	DATE 9/2015
AS BUILT DETAILS		DATE

psectmc2m NATIVE 4-30-15.dgn MX 9/22/2015 9:50:15 AM "n18srng"

SHEET TOTALS			
COMMON EXCAV.	— C.Y.	ROCK EXCAV.	— C.Y.
FILL	— C.Y.	MUCK EXCAV.	— C.Y.

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	32	34

SDR PROCESSED		DATE
NEW DESIGN	JAS	DATE 9/2015
SHEET CHECKED	JAH	DATE 9/2015
AS BUILT DETAILS		DATE

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

psectmc2m NATIVE 4-30-15.dgn MX 9/22/2015 9:50:15 AM "n18smg"

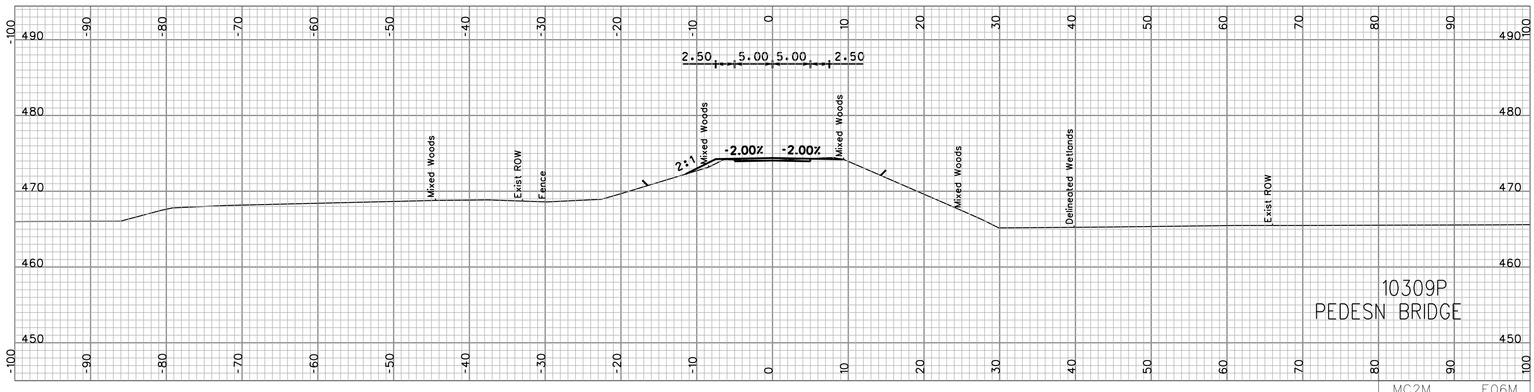
psectmc2m NATIVE 4-30-15.dgn MIX 9/22/2015 9:50:15 AM "nl8smg"

SDR PROCESSED		DATE	
NEW DESIGN	JAS	DATE	9/2015
SHEET CHECKED	JAH	DATE	9/2105
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

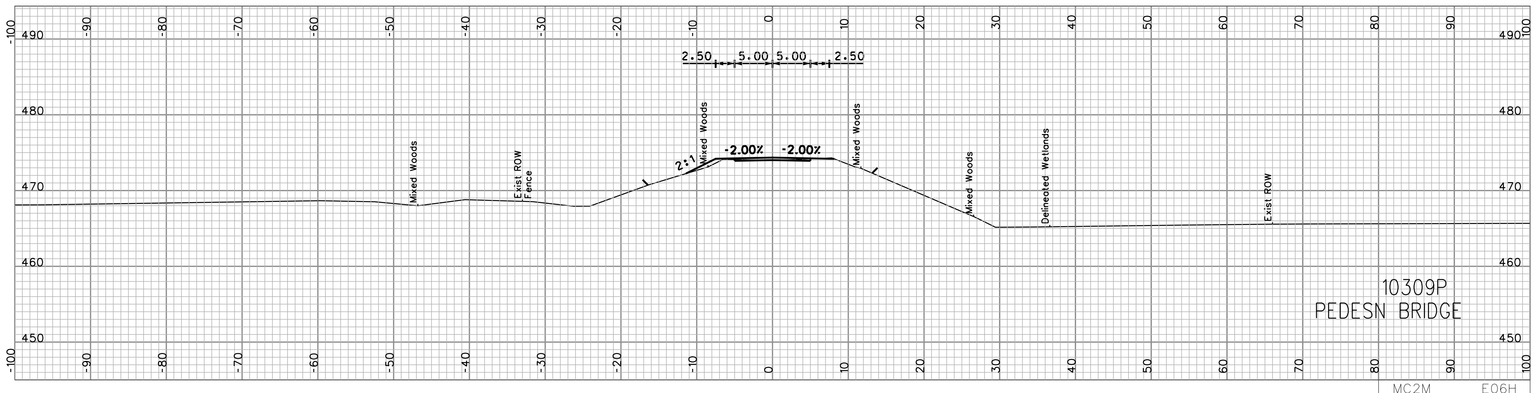
474.1
474.39



MC2M E06M D06M

211+75

474.0
474.35



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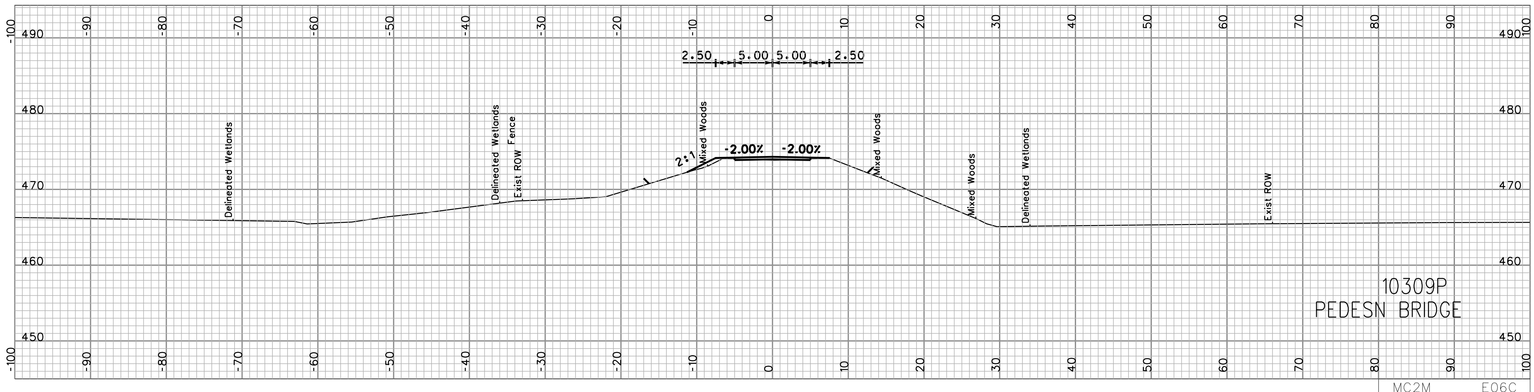
211+50

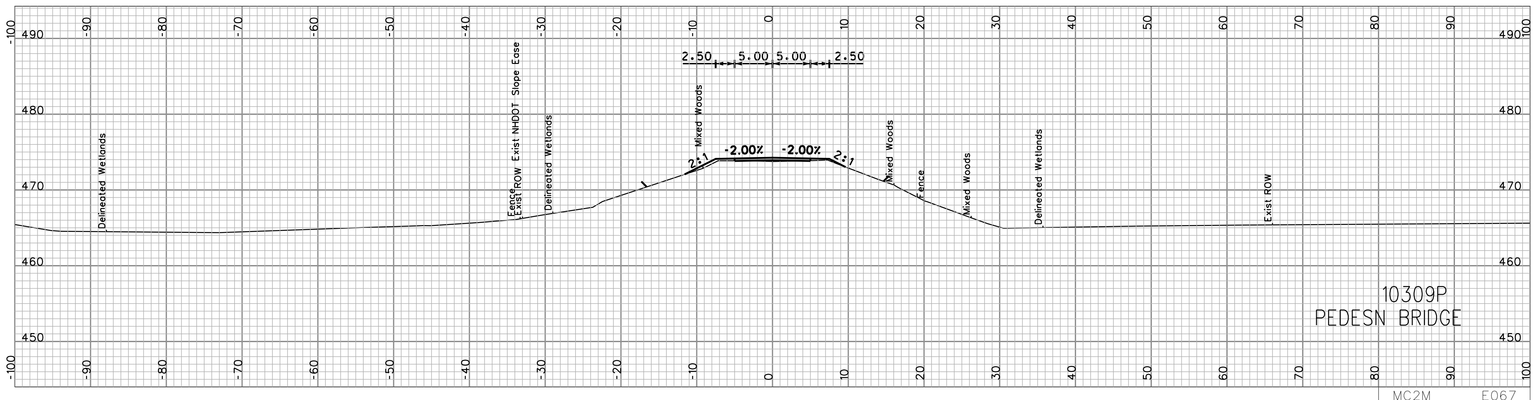
473.9
474.30



MC2M E06C D06C

211+25

473.8
474.25



MC2M E067 D067

211+00

SHEET TOTALS			
COMMON EXCAV.	– C.Y.	ROCK EXCAV.	– C.Y.
FILL	– C.Y.	MUCK EXCAV.	– C.Y.

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	33	34

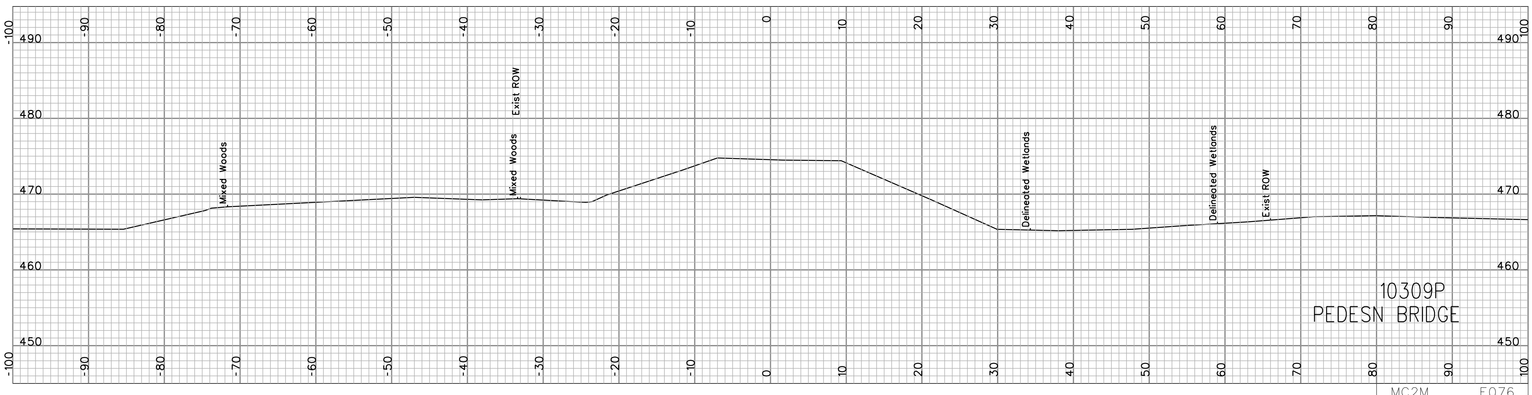
psectmc2m NATIVE 4-30-15.dgn MX 9/22/2015 9:50:15 AM "nt8smg"

SDR PROCESSED		DATE	
NEW DESIGN	JAS	DATE	9/2015
SHEET CHECKED	JAH	DATE	9/2015
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL

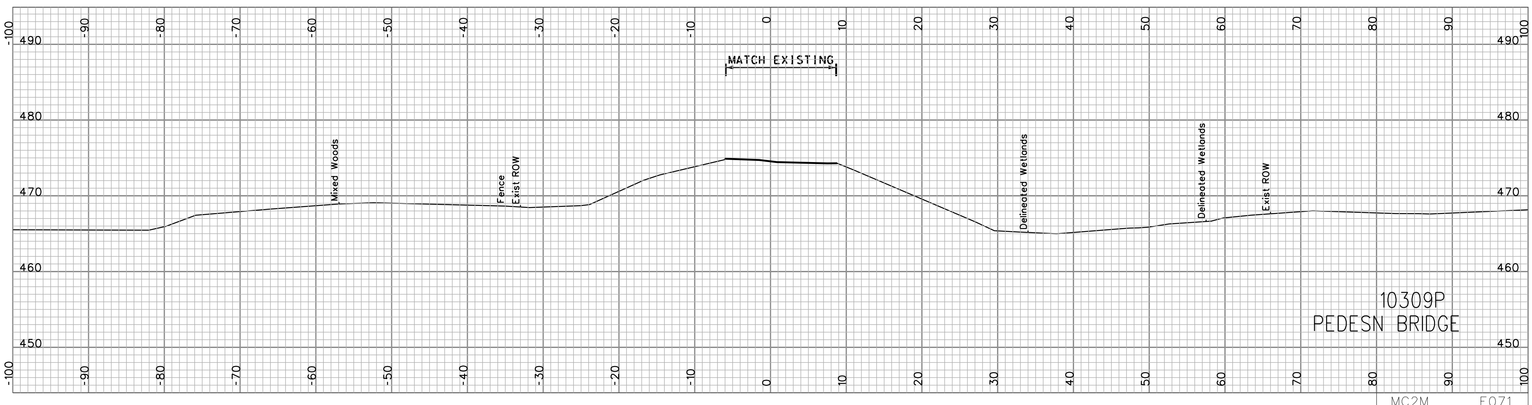
NUMBER	DATE	STATION	STATION	DESCRIPTION

474.5



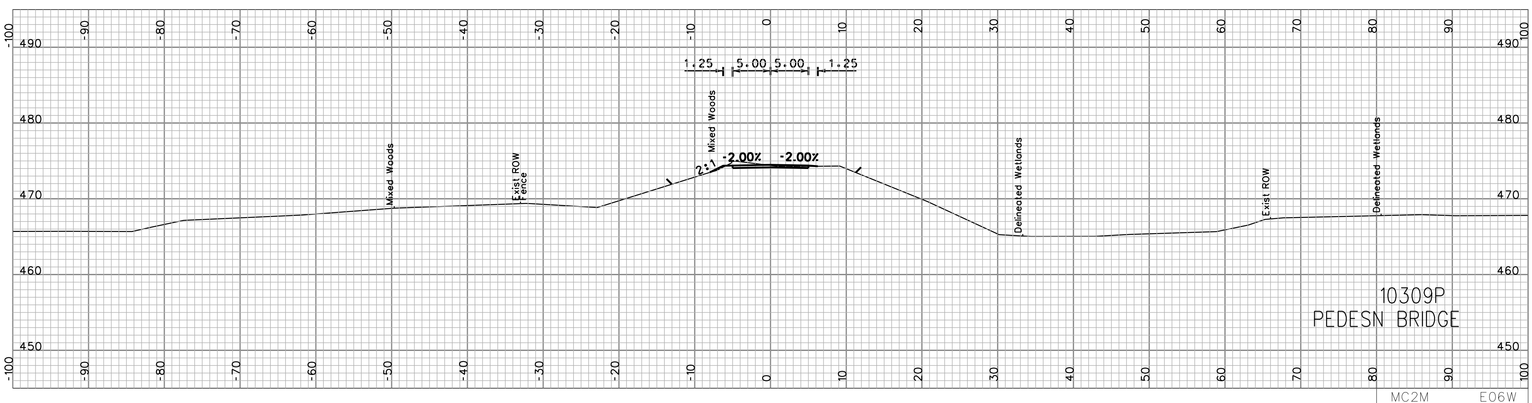
212+75

474.5 **MATCH**



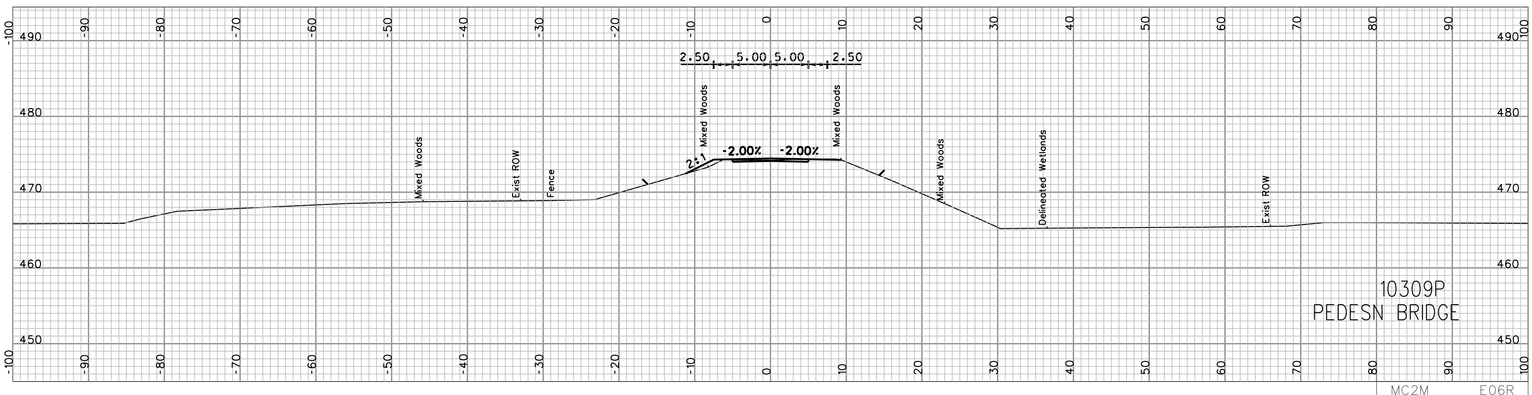
212+50

474.4 **474.49**



212+25

474.2 **474.44**



212+00

SHEET TOTALS			
COMMON EXCAV. – C.Y.		ROCK EXCAV. – C.Y.	
FILL – C.Y.		MUCK EXCAV. – C.Y.	
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
psectmc2m NATIVE 4-30-15	10309p	34	34