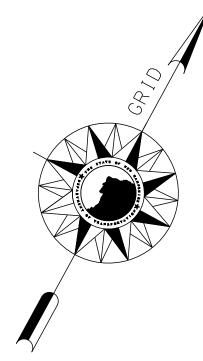


SCALE: 1" = 200'

NHDOT Bureau of Environment Marc Laurin 4/13/2018

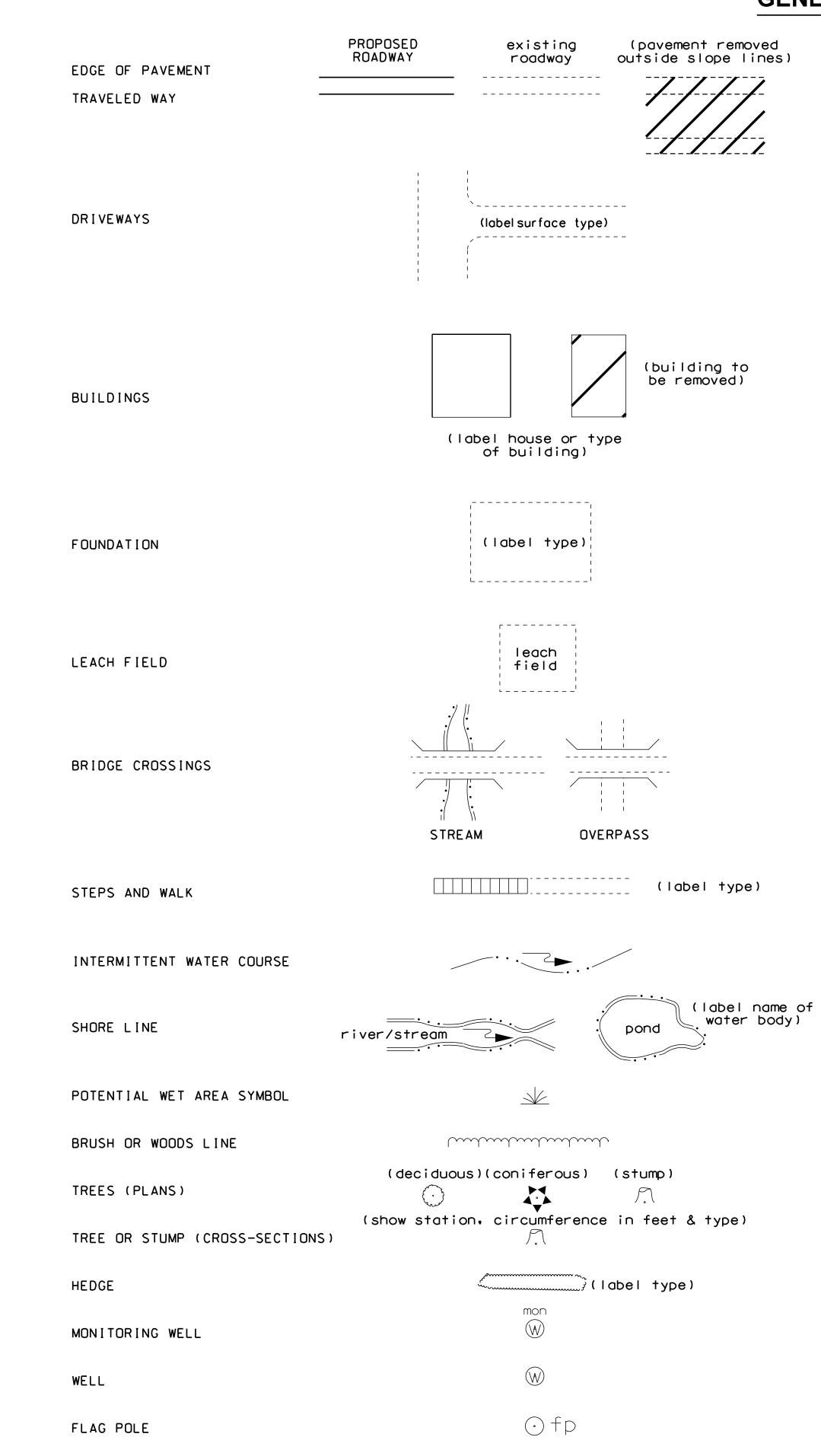




NH ROUTE 104 CULVERT REHABILITATION WETLAND IMPACT PLANS

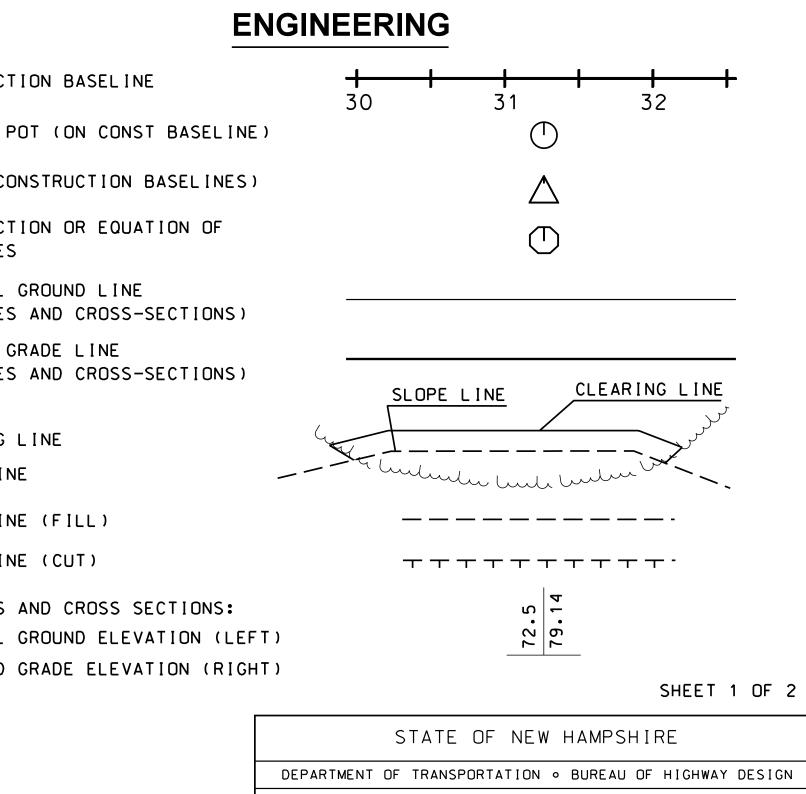
FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X-A001(047)	15937	1	10

GENERAL



ORIGINAL GROUND (TYPICALS)	<u>\\$\$\$\$\$\\$</u>	WETLAND DESIGNATION AND TYPE	2 PUB2E
		DELINEATED WETLAND ORDINARY HIGH WATER	- — D W — — — D W — — — D W — — — — D W — — — —
		TOP OF BANK	——————————————————————————————————————
ROCK OUTCROP		TOP OF BANK & ORDINARY HIGH WATER	— — товонш— — — товонш— —
		NORMAL HIGH WATER	——————————————————————————————————————
		WIDTH AT BANK FULL PRIME WETLAND	
ROCK LINE		PRIME WETLAND 100' BUFFER	PWET100 PWET100
(TYPICALS & SECTIONS ONLY)		NON-JURISDICTIONAL DRAINAGE AREA	——————————————————————————————————————
	existing PROPOSED	COWARDIN DISTINCTION LINE	
	bgr	TIDAL BUFFER ZONE	——————————————————————————————————————
GUARDRAIL (label type)		DEVELOPED TIDAL BUFFER ZONE	——————————————————————————————————————
	<u> </u>	HIGHEST OBSERVABLE TIDE LINE MEAN HIGH WATER	— — ноть — — ноть — — ноть — — — — — — — — — — — — — — — — — — —
JERSEY BARRIER		MEAN LOW WATER	— — MLW— — MLW— — — — — — — — — — — — — — — — — — —
		VERNAL POOL	VP VP VP VP
		SPECIAL AQUATIC SITE	SAS SAS SAS
CURB (LABEL TYPE)		REFERENCE LINE	——————————————————————————————————————
		WATER FRONT BUFFER	wbso wbso wbso
STONE WALL		NATURAL WOODLAND BUFFER PROTECTED SHORELAND	——————————————————————————————————————
		INVASIVE SPECIES LABEL	- PS250 - PS
RETAINING WALL (LABEL TYPE)	(points toward retained ground)	INVASIVE SPECIES	
FENCE (LABEL TYPE)	////	FLOODPI	LAIN / FLOODWAY
		500 YEAR FLOODPLAIN BOUNDARY	
	🔔 (single post) 🛖		——————————————————————————————————————
SIGNS	🐨 (double post)	100 YEAR FLOODPLAIN BOUNDARY FLOODWAY	——————————————————————————————————————
		FLOODWAT	— — F W — — — F W — — — F W —
GAS PUMP	⊙ gp	ENG	INEERING
FUEL TANK (ABOVE GROUND)	\odot f + (label size & type)	CONSTRUCTION BASELINE	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
STORAGE TANK FILLER CAP	· − fc	PC. PT. POT (ON CONST BASELINE)	\bigcirc
SEPTIC TANK	S	PI (IN CONSTRUCTION BASELINES)	\bigtriangleup
		INTERSECTION OR EQUATION OF TWO LINES	
GRAVE	(·) gr	ORIGINAL GROUND LINE	
MAILBOX	⊙ mb	(PROFILES AND CROSS-SECTIONS)	
		PROFILE GRADE LINE	
VENT PIPE			
	$\odot \vee \square$	(PROFILES AND CROSS-SECTIONS)	SLOPE LINE CLEARING LINE
		(PROFILES AND CROSS-SECTIONS)	SLOPE LINE CLEARING LINE
SATELLITE DISH ANTENNA		(PROFILES AND CROSS-SECTIONS)	
		(PROFILES AND CROSS-SECTIONS)	SLOPE LINE CLEARING LINE
SATELLITE DISH ANTENNA PHONE		(PROFILES AND CROSS-SECTIONS)	
		(PROFILES AND CROSS-SECTIONS) CLEARING LINE SLOPE LINE	
PHONE GROUND LIGHT/LAMP POST	da ∑ph ¢gl ýlp	(PROFILES AND CROSS-SECTIONS) CLEARING LINE SLOPE LINE SLOPE LINE (FILL) SLOPE LINE (CUT) PROFILES AND CROSS SECTIONS:	=
PHONE	da X ph	(PROFILES AND CROSS-SECTIONS) CLEARING LINE SLOPE LINE SLOPE LINE (FILL) SLOPE LINE (CUT) PROFILES AND CROSS SECTIONS: ORIGINAL GROUND ELEVATION (LEFT)	$ \underline{z} _{\underline{z}}$
PHONE GROUND LIGHT/LAMP POST BORING LOCATION	da Den Den da Den Den Den Den Den Den Den Den	(PROFILES AND CROSS-SECTIONS) CLEARING LINE SLOPE LINE SLOPE LINE (FILL) SLOPE LINE (CUT) PROFILES AND CROSS SECTIONS:	=
PHONE GROUND LIGHT/LAMP POST	da ∑ph ¢gl ýlp	(PROFILES AND CROSS-SECTIONS) CLEARING LINE SLOPE LINE SLOPE LINE (FILL) SLOPE LINE (CUT) PROFILES AND CROSS SECTIONS: ORIGINAL GROUND ELEVATION (LEFT)	SHEET 1 0
PHONE GROUND LIGHT/LAMP POST BORING LOCATION	da ⇒ ph ⇒ gl → lp B TP	(PROFILES AND CROSS-SECTIONS) CLEARING LINE SLOPE LINE SLOPE LINE (FILL) SLOPE LINE (CUT) PROFILES AND CROSS SECTIONS: ORIGINAL GROUND ELEVATION (LEFT) FINISHED GRADE ELEVATION (RIGHT)	STATE OF NEW HAMPSHIRE
PHONE GROUND LIGHT/LAMP POST BORING LOCATION	da Den Den da Den Den Den Den Den Den Den Den	(PROFILES AND CROSS-SECTIONS) CLEARING LINE SLOPE LINE SLOPE LINE (FILL) SLOPE LINE (CUT) PROFILES AND CROSS SECTIONS: ORIGINAL GROUND ELEVATION (LEFT) FINISHED GRADE ELEVATION (RIGHT)	SHEET 1 0
PHONE GROUND LIGHT/LAMP POST BORING LOCATION TEST PIT	da ⇒ ph ⇒ gl → lp B TP	(PROFILES AND CROSS-SECTIONS) CLEARING LINE SLOPE LINE SLOPE LINE (FILL) SLOPE LINE (CUT) PROFILES AND CROSS SECTIONS: ORIGINAL GROUND ELEVATION (LEFT) FINISHED GRADE ELEVATION (RIGHT)	STATE OF NEW HAMPSHIRE
PHONE GROUND LIGHT/LAMP POST BORING LOCATION TEST PIT INTERSTATE NUMBERED HIGHWAY	da → ph ↓ gl ↓ lp B ■ TP ₹33	(PROFILES AND CROSS-SECTIONS) CLEARING LINE SLOPE LINE SLOPE LINE (FILL) SLOPE LINE (CUT) PROFILES AND CROSS SECTIONS: ORIGINAL GROUND ELEVATION (LEFT) FINISHED GRADE ELEVATION (RIGHT)	STATE OF NEW HAMPSHIRE

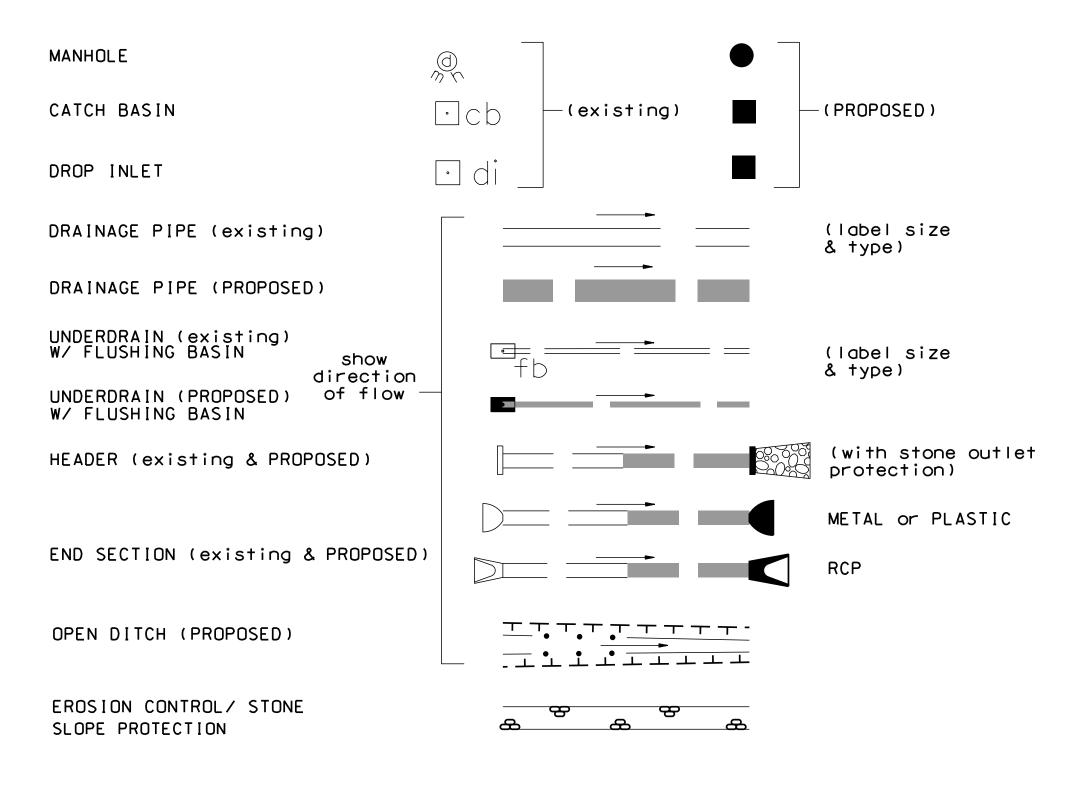
SHORELAND - WETLAND



STANDARD	SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
11-21-2014	15937stdsymb1_2	15937	2	10

DRAINAGE



BOUNDARIES / RIGHT-OF-WAY

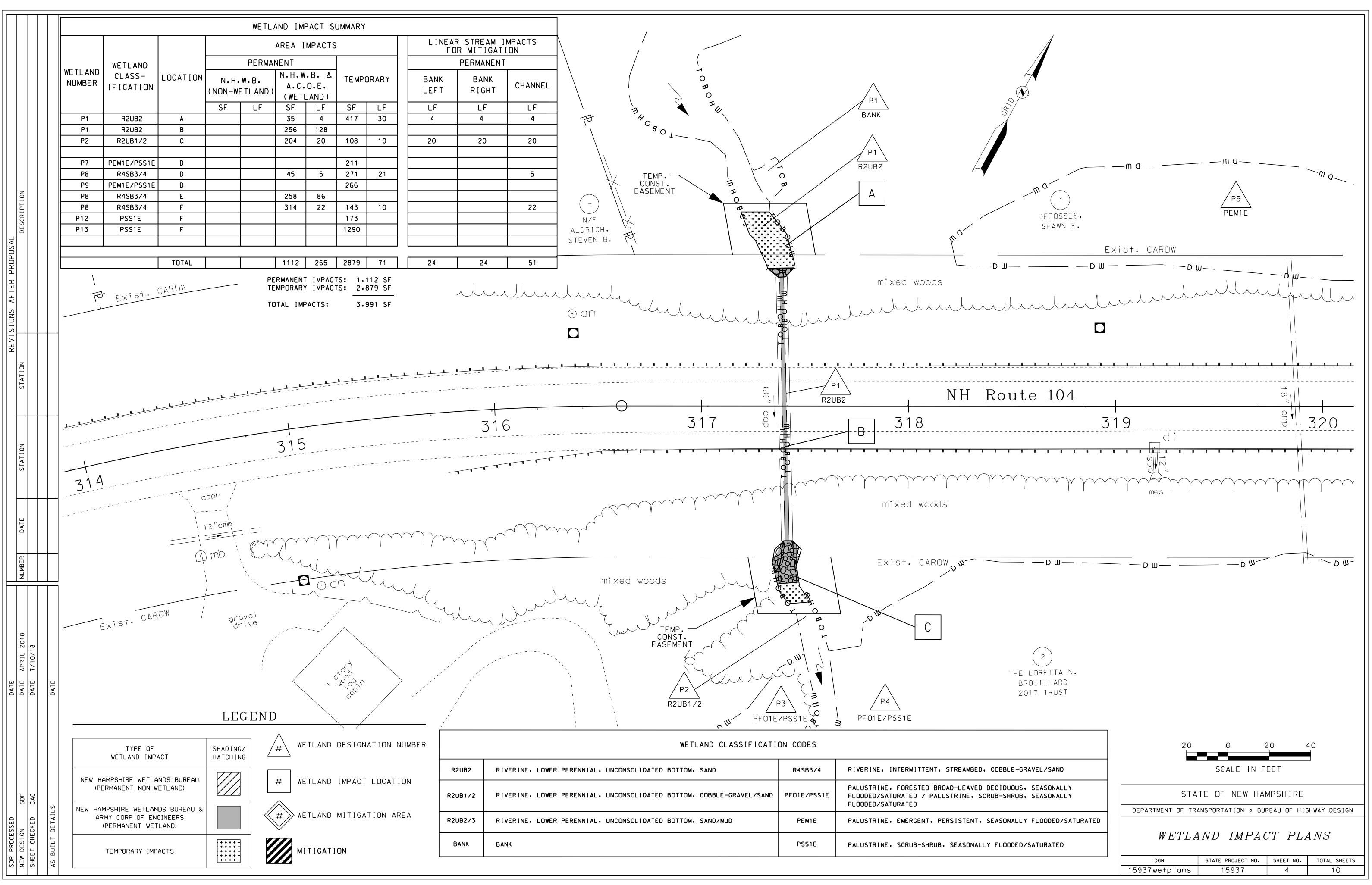
RIGHT-OF-WAY LINE (label type) ____ RR RIGHT-OF-WAY LINE _____ ___ ____ PROPERTY LINE ___₽_____ PROPERTY LINE (COMMON OWNER) _____7 _____ BOW ______ TOWN LINE ____ COUNTY LINE GRAF TON MAINE STATE LINE NEW HAMPSHIRE NATIONAL FOREST ____. CONSERVATION LAND — — LC— — — LC— — BENCH MARK / SURVEY DISK \longrightarrow BOUND • (PROPOSED) o bnd STATE LINE/ TOWN LINE MONUMENT • S/L • T/L \bigcirc NHDOT PROJECT MARKER \bigcirc IRON PIPE OR PIN Ĭр DRILL HOLE IN ROCK \bigcirc dh $\left\{\begin{array}{c}
156\\
14
\end{array}\right\}$ TAX MAP AND LOT NUMBER 1642/341 6.80 Ac.<u>+</u> 12 PROPERTY PARCEL NUMBER (H)HISTORIC PROPERTY

UTILITIES

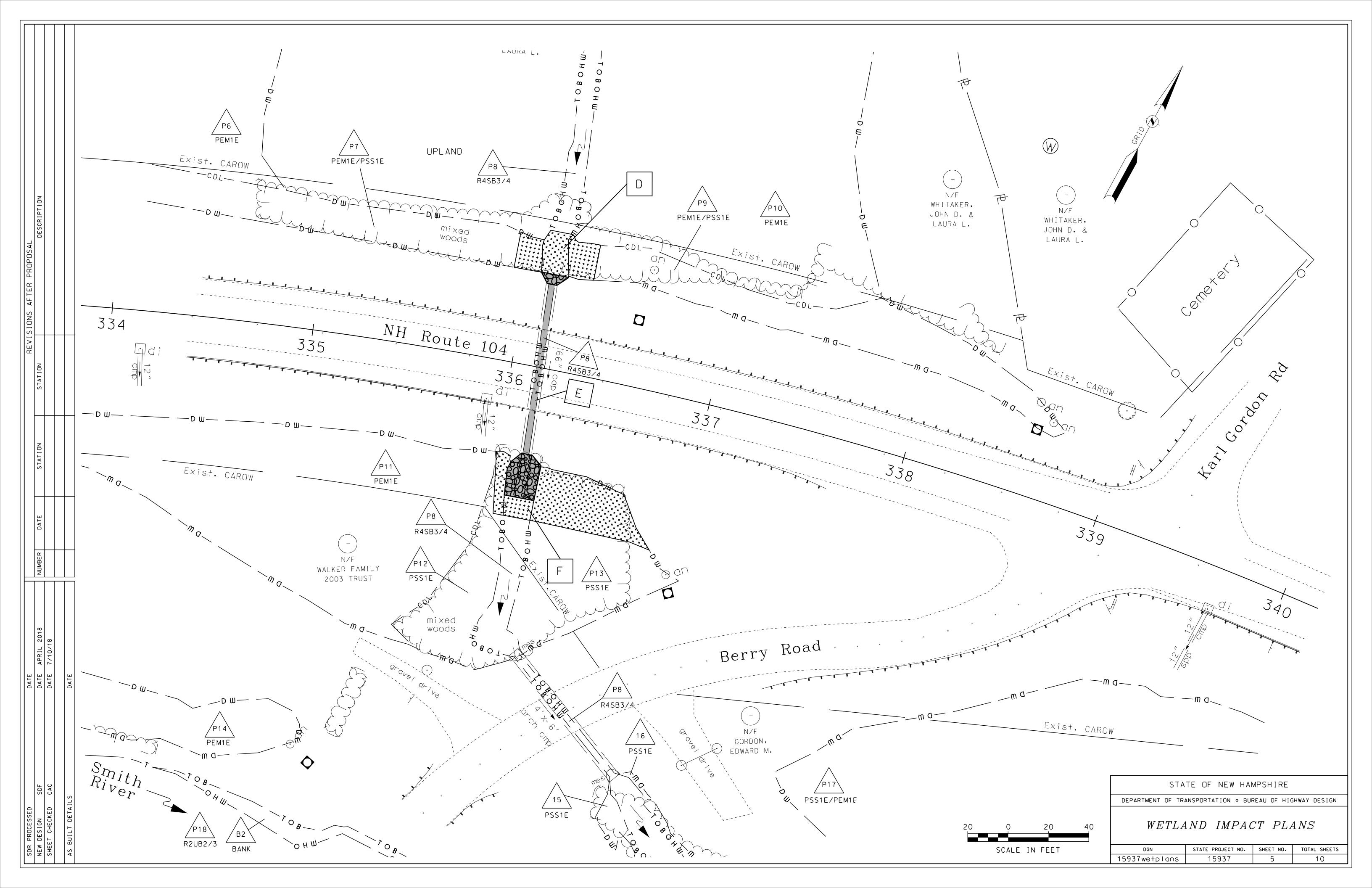
	UTILITIE	5			
	existing	<u>)</u>	PROPOS	<u>SED</u>	
TELEPHONE POLE	_ — —				
POWER POLE					MASI
JOINT OCCUPANCY		_(plot poir not center)	OPT
MISCELLANEOUS/UNKNOWN POLE	-				OPT
GUY POLE OR PUSH BRACE					TRAF
LIGHT POLE	->-)	\oplus		HEAD
LIGHT ON POWER POLE	->	I	$\dot{-}$		SIGN
LIGHT ON JOINT POLE		l	—		CONI
			I		METE
POLE STATUS: REMOVE, LEAVE, PROPOSED, OR TEMPORARY AS APPLICABLE e.g.:	RL		+04 •0´	<u>T+04</u> 25.0'	PULL
RAILROAD					LOOF
RAILROAD SIGN	(label owr →	nership)	¥		CAME F I BE
RAILROAD SIGNAL		\bowtie			FIBE
UTILITY JUNCTION BOX	\boxtimes	jb	⊠JB		ITS
OVERHEAD WIRE			OW	Ow	VAR
UNDERGROUND UTILITIES	(label	турел			DYNA
(on existing lines WATER label size, type and	——— w ———	——— w ———	PW	PW	ROAD
note if abandoned) SEWER	S	s	PS	PS	
					CURE
TELEPHONE	——— T ———	—— T —— —	PT	—— PT ———	CURE
ELECTRIC	——— E ———	——— E ——— —	PE	——РЕ	CLEA
GAS	G	G		PG	DRA
LIGHTING	L	L	PL	PL	EROS
INTELLIGENT TRANSPORTATION SYSTEM	I TS	ITS 	PITS	— PITS —	FENC
FIBER OPTIC	F0	——FO——— —	— PF 0 ————	PF 0	GUAF
WATER SHUT OFF	MSC	D	*50		ITS
GAS SHUT OFF	d S	2	50 50		
HYDRANT	C. Ayu	<i>?</i>	0 17		LIGH
MANHOLES			AY V		TRAF
SEWER	(S) /7) X	7		1 H S	
TELEPHONE	(†) /7) (7		ТНТ	
ELECTRICAL	(E) /7) (C)	Ν		1 H E	
GAS	() /) x				
UNKNOWN			IV	1 H G	
	· / \				

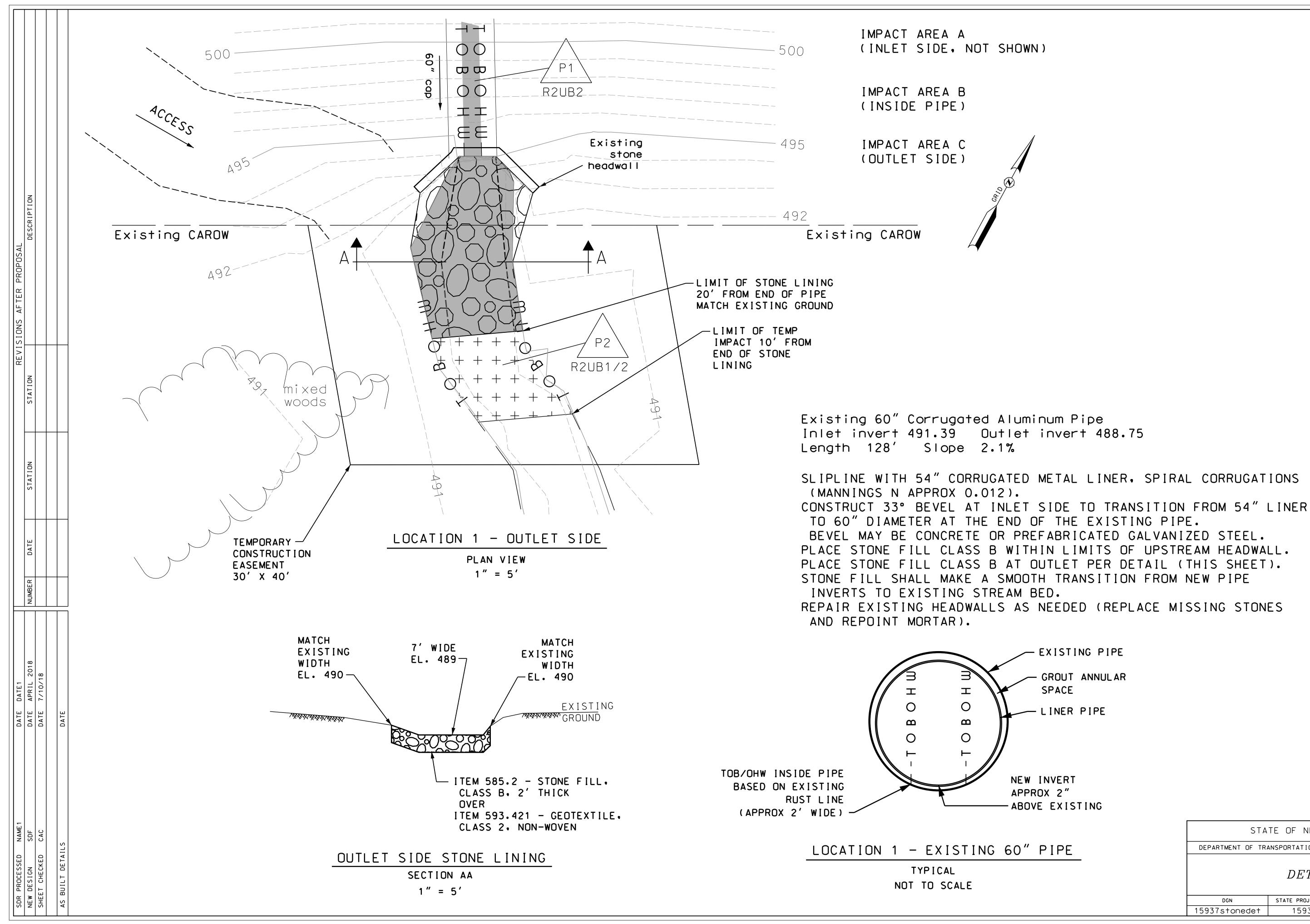
TRAFFIC SIGNALS / ITS PROPOSED existing AST ARM (existing) (\cdot) 30' (NOTE ANGLE FROM B) TICOM RECEIVER TICOM STROBE $\Theta \rightarrow$ RAFFIC SIGNAL $\bigcirc \bigcirc$ DESTAL WITH PEDESTRIAN SIGNAL $\bigcirc \blacksquare$ ₽ ADS AND PUSH BUTTON UNIT Ċ**®**−⊞ 由 GNAL CONDUIT -c---c----PC-PC-PC- \boxtimes C C ONTROLLER CABINET \boxtimes C C ⊠ MP 🛛 mp TER PEDESTAL 🗆 PB 🗌 pb JLL BOX DOP DETECTOR (QUADRUPOLE) ·-----(label size) -----OP DETECTOR (RECTANGULAR) !----' (label size) 0 MERA POLE (CCTV) \bigcirc ⊙FOD ⊙fod BER OPTIC DELINEATOR $(f)_{\mathcal{S}}$ BER OPTIC SPLICE VAULT SVF ⊠ITS ⊠i†s S EQUIPMENT CABINET ARIABLE SPEED LIMIT SIGN _ NAMIC MESSAGE SIGN **-**(·) **♦**-⊙ $\langle - (\cdot)$ DAD AND WEATHER INFO SYSTEM **CONSTRUCTION NOTES** B-1 RB MARK NUMBER - BITUMINOUS G-1 IRB MARK NUMBER - GRANITE (A) EARING AND GRUBBING AREA RAINAGE NOTE ROSION CONTROL NOTE Α NCING NOTE 1 JARDRAIL NOTE IS NOTE 1 GHTING NOTE Α RAFFIC SIGNAL NOTE SHEET 2 OF 2 STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
9-1-2016	15937stdsymb1_2	15937	3	10

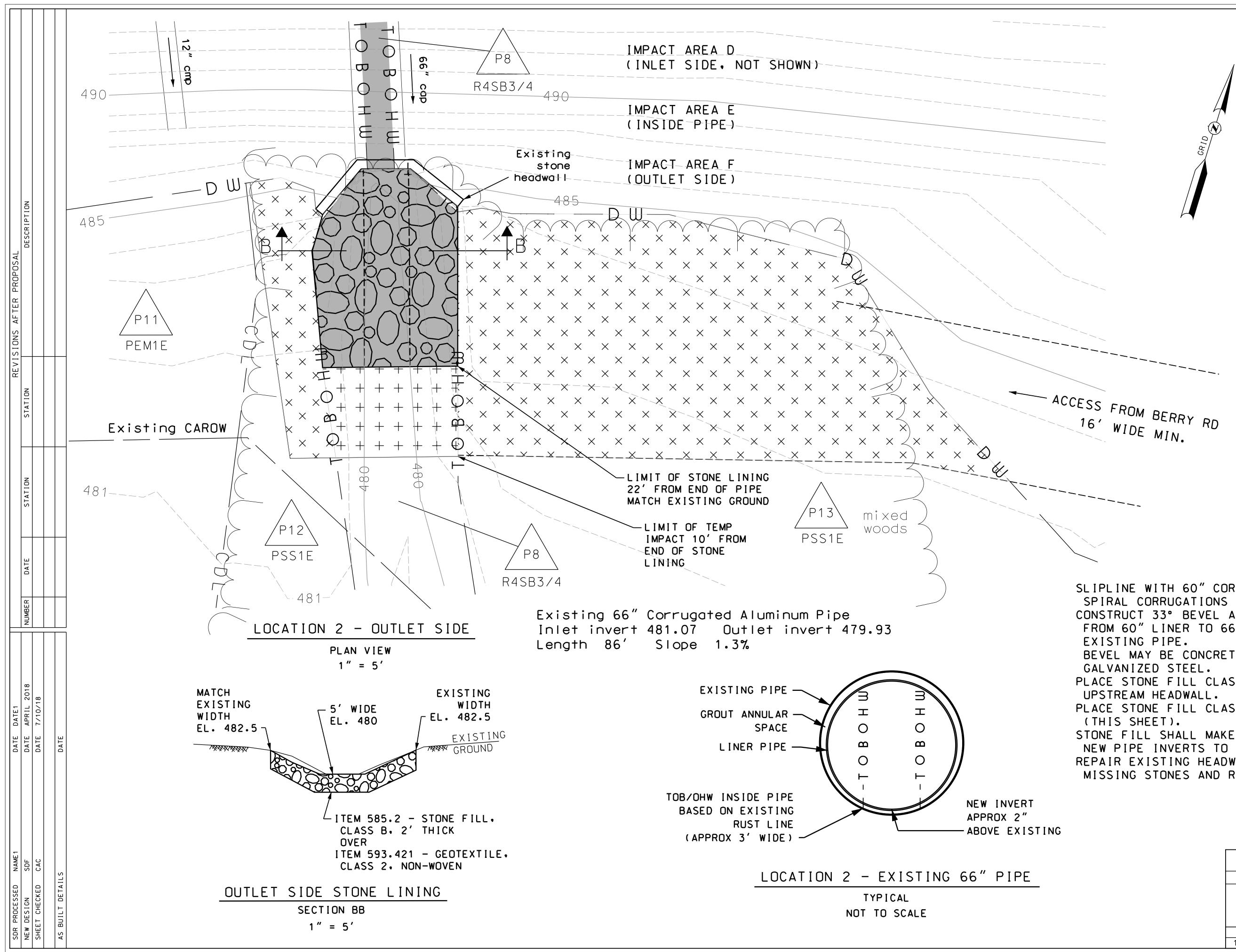


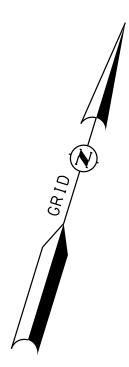
RIVERINE, LOWER PERENNIAL, UNCONSOLIDATED BOTTOM, SAND	R4SB3/4	RIVERINE, INTERMITTENT, STREAMBED, COBBLE-(
RIVERINE, LOWER PERENNIAL, UNCONSOLIDATED BOTTOM, COBBLE-GRAVEL/SAND	PF01E/PSS1E	PALUSTRINE, FORESTED BROAD-LEAVED DECIDUOUS FLOODED/SATURATED / PALUSTRINE, SCRUB-SHRUE FLOODED/SATURATED
RIVERINE, LOWER PERENNIAL, UNCONSOLIDATED BOTTOM, SAND/MUD	PEM1E	PALUSTRINE, EMERGENT, PERSISTENT, SEASONALI
BANK	PSS1E	PALUSTRINE, SCRUB-SHRUB, SEASONALLY FLOODE





STA	TE OF NEW HAN	MPSHIRE	
DEPARTMENT OF TRA	ANSPORTATION • BU	REAU OF HIG	HWAY DESIGN
	DETAILS	5	
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
15937stonedet	15937	6	10





16' WIDE MIN.

SLIPLINE WITH 60" CORRUGATED METAL LINER, SPIRAL CORRUGATIONS (MANNINGS N APPROX 0.012). CONSTRUCT 33° BEVEL AT INLET SIDE TO TRANSITION FROM 60" LINER TO 66" DIAMETER AT THE END OF THE EXISTING PIPE. BEVEL MAY BE CONCRETE OR PREFABRICATED GALVANIZED STEEL. PLACE STONE FILL CLASS B WITHIN LIMITS OF UPSTREAM HEADWALL. PLACE STONE FILL CLASS B AT OUTLET PER DETAIL (THIS SHEET). STONE FILL SHALL MAKE A SMOOTH TRANSITION FROM NEW PIPE INVERTS TO EXISTING STREAM BED. REPAIR EXISTING HEADWALLS AS NEEDED (REPLACE MISSING STONES AND REPOINT MORTAR).

STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRA	ANSPORTATION • BUP	REAU OF HIC	GHWAY DESIGN		
DETAILS					
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS		
15937stonedet	15937	7	10		

1. ENVIRONMENTAL COMMITMENTS:

- 1.1. THESE GUIDELINES DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH ANY CONTRACT PROVISIONS, OR APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
- 1.2. THIS PROJECT WILL BE SUBJECT TO THE US EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER CONSTRUCTION GENERAL PERMIT AS ADMINISTERED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THIS PROJECT IS SUBJECT TO REQUIREMENTS IN THE MOST RECENT CONSTRUCTION GENERAL PERMIT (CGP).
- 1.3. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NHDES WETLAND PERMIT, THE US ARMY CORPS OF ENGINEERS PERMIT, WATER QUALITY CERTIFICATION AND THE SPECIAL ATTENTION ITEMS INCLUDED IN THE CONTRACT DOCUMENTS. 1.4. ALL STORM WATER, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER
- MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION (DECEMBER 2008) (BMP MANUAL) AVAILABLE FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES).
- 1.5. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17, AND ALL, PUBLISHED NHDES ALTERATION OF TERRAIN ENV-WQ 1500 REQUIREMENTS (HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM)
- 1.6. THE CONTRACTOR IS DIRECTED TO REVIEW AND COMPLY WITH SECTION 107.1 OF THE CONTRACT AS IT REFERS TO SPILLAGE, AND ALSO WITH REGARDS TO EROSION, POLLUTION, AND TURBIDITY PRECAUTIONS.
- 2. STANDARD EROSION CONTROL SEQUENCING APPLICABLE TO ALL CONSTRUCTION PROJECTS:
 - 2.1. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. PERIMETER CONTROLS AND STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AS SHOWN IN THE BMP MANUAL AND AS DIRECTED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARER. 2.2. EROSION, SEDIMENTATION CONTROL MEASURES AND INFILTRATION BASINS SHALL BE CLEANED, REPLACED AND AUGMENTED AS NECESSARY TO PREVENT
 - SEDIMENTATION BEYOND PROJECT LIMITS THROUGHOUT THE PROJECT DURATION. 2.3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 645 OF THE NHDOT SPECIFICATIONS FOR ROAD AND BRIDGES CONSTRUCTION.
 - 2.4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
 - (A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
 - (B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
 - (C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED;
 - (D) TEMPORARY SLOPE STABILIZATION CONFORMING TO TABLE 1 HAS BEEN PROPERLY INSTALLED 2.5. ALL STOCKPILES SHALL BE CONTAINED WITH A PERIMETER CONTROL. IF THE STOCKPILE IS TO REMAIN UNDISTURBED FOR MORE THAN 14 DAYS, MULCHING WILL
 - BE REQUIRED.
 - 2.6. A WATER TRUCK SHALL BE AVAILABLE TO CONTROL EXCESSIVE DUST AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.
 - 2.7. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN UNTIL THE AREA HAS BEEN PERMANENTLY STABILIZED. 2.8. CONSTRUCTION PERFORMED ANY TIME BETWEEN NOVEMBER 30™ AND MAY 1" OF ANY YEAR SHALL BE CONSIDERED WINTER CONSTRUCTION AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
 - (A) ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15™, SHALL BE STABILIZED IN ACCORDANCE WITH TABLE 1.
 - (B) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15", SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
 - (C) AFTER NOVEMBER 30™ INCOMPLETE ROAD SURFACES, WHERE WORK HAS STOPPED FOR THE SEASON, SHALL BE PROTECTED IN ACCORDANCE WITH TABLE 1. (D) WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE PROJECT IS WITHOUT STABILIZATION AT ONE TIME, UNLESS A WINTER CONSTRUCTION PLAN HAS BEEN APPROVED BY NHDOT THAT MEETS THE REQUIREMENTS OF ENV-WQ 1505.02 AND ENV-WQ 1505.05.
 - (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WQ 1505.05) AND INCLUDING THE REQUIREMENTS OF NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30".

GENERAL CONSTRUCTION PLANNING AND SELECTION OF STRATEGIES TO CONTROL EROSION AND SEDIMENT ON HIGHWAY CONSTRUCTION PROJECTS

- 3. PLAN ACTIVITIES TO ACCOUNT FOR SENSITIVE SITE CONDITIONS: 3.1. CLEARLY FLAG AREAS TO BE PROTECTED IN THE FIELD AND PROVIDE CONSTRUCTION BARRIERS TO PREVENT TRAFFICKING OUTSIDE OF WORK AREAS.
 - 3.2. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS.
 - 3.3. PROTECT AND MAXIMIZE EXISTING NATIVE VEGETATION AND NATURAL FOREST BUFFERS BETWEEN CONSTRUCTION ACTIVITY AND SENSITIVE AREAS. 3.4. WHEN WORK IS PERFORMED IN AND NEAR WATER COURSES, STREAM FLOW DIVERSION METHODS SHALL BE IMPLEMENTED PRIOR TO ANY EXCAVATION OR FILLING. 3.5. WHEN WORK IS PERFORMED WITHIN 50 FEET OF SURFACE WATERS (WETLAND, OPEN WATER OR FLOWING WATER), PERIMETER CONTROL SHALL BE ENHANCED CONSISTENT
 - WITH SECTION 2.1.2.1. OF THE 2012 NPDES CONSTRUCTION GENERAL PERMIT.
- 4. MINIMIZE THE AMOUNT OF EXPOSED SOIL: 4.1. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS. MINIMIZE THE AREA OF EXPOSED SOIL AT ANY ONE TIME. PHASING
 - SHALL BE USED TO REDUCE THE AMOUNT AND DURATION OF SOIL EXPOSED TO THE ELEMENTS AND VEHICLE TRACKING. 4.2. UTILIZE TEMPORARY MULCHING OR PROVIDE ALTERNATE TEMPORARY STABILIZATION ON EXPOSED SOILS IN ACCORDANCE WITH TABLE 1. 4.3. THE MAXIMUM AMOUNT OF DISTURBED EARTH SHALL NOT EXCEED A TOTAL OF 5 ACRES FROM MAY 1" THROUGH NOVEMBER 30", OR EXCEED ONE ACRE DURING WINTER MONTHS, UNLESS THE CONTRACTOR DEMONSTRATES TO THE DEPARTMENT THAT THE ADDITIONAL AREA OF DISTURBANCE IS NECESSARY TO MEET THE CONTRACTORS CRITICAL PATH METHOD SCHEDULE (CPM), AND THE CONTRACTOR HAS ADEQUATE RESOURCES AVAILABLE TO ENSURE THAT ENVIRONMENTAL COMMITMENTS WILL BE MET.
- 5. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT:
 - 5.1. DIVERT OFF SITE RUNOFF OR CLEAN WATER AWAY FROM THE CONSTRUCTION ACTIVITY TO REDUCE THE VOLUME THAT NEEDS TO BE TREATED ON SITE. 5.2. DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM DISTURBED AREAS, SLOPES, AND AROUND ACTIVE WORK AREAS AND TO A STABILIZED OUTLET LOCATION.
 - 5.3. CONSTRUCT IMPERMEABLE BARRIERS AS NECESSARY TO COLLECT OR DIVERT CONCENTRATED FLOWS FROM WORK OR DISTURBED AREAS. 5.4. STABILIZE, TO APPROPRIATE ANTICIPATED VELOCITIES, CONVEYANCE CHANNELS OR PUMPING SYSTEMS NEEDED TO CONVEY CONSTRUCTION STORMWATER TO BASINS AND DISCHARGE LOCATIONS PRIOR TO USE.
- 5.5. DIVERT OFF-SITE WATER THROUGH THE PROJECT IN AN APPROPRIATE MANNER SO NOT TO DISTURB THE UPSTREAM OR DOWNSTREAM SOILS, VEGETATION OR HYDROLOGY BEYOND THE PERMITTED AREA.
- 6. PROTECT SLOPES:
 - 6.1. INTERCEPT AND DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED AND NEWLY ESTABLISHED AREAS AND SLOPES TO A STABILIZED OUTLET OR CONVEYANCE. 6.2. CONSIDER HOW GROUNDWATER SEEPAGE ON CUT SLOPES MAY IMPACT SLOPE STABILITY AND INCORPORATE APPROPRIATE MEASURES TO MINIMIZE EROSION.
 - 6.3. CONVEY STORMWATER DOWN THE SLOPE IN A STABILIZED CHANNEL OR SLOPE DRAIN.
- 6.4. THE OUTER FACE OF THE FILL SLOPE SHOULD BE IN A LOOSE RUFFLED CONDITION PRIOR TO TURF ESTABLISHMENT. TOPSOIL OR HUMUS LAYERS SHALL BE TRACKED UP AND DOWN THE SLOPE, DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE-RAKED, OR HAND-WORKED TO PRODUCE A RUFFLED SURFACE.
- 7. ESTABLISH STABILIZED CONSTRUCTION EXITS:
- 7.1. INSTALL AND MAINTAIN CONSTRUCTION EXITS, ANYWHERE TRAFFIC LEAVES A CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY. 7.2. SWEEP ALL CONSTRUCTION RELATED DEBRIS AND SOIL FROM THE ADJACENT PAVED ROADWAYS AS NECESSARY.
- 8. PROTECT STORM DRAIN INLETS:
 - 8.1. DIVERT SEDIMENT LADEN WATER AWAY FROM INLET STRUCTURES TO THE EXTENT POSSIBLE.
 - 8.2. INSTALL SEDIMENT BARRIERS AND SEDIMENT TRAPS AT INLETS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
 - 8.3. CLEAN CATCH BASINS, DRAINAGE PIPES, AND CULVERTS IF SIGNIFICANT SEDIMENT IS DEPOSITED. 8.4. DROP INLET SEDIMENT BARRIERS SHOULD NEVER BE USED AS THE PRIMARY MEANS OF SEDIMENT CONTROL AND SHOULD ONLY BE USED TO PROVIDE AN ADDITIONAL LEVEL OF PROTECTION TO STRUCTURES AND DOWN-GRADIENT SENSITIVE RECEPTORS.
- 9. SOIL STABILIZATION:
 - 9.1. WITHIN THREE DAYS OF THE LAST ACTIVITY IN AN AREA, ALL EXPOSED SOIL AREAS, WHERE CONSTRUCTION ACTIVITIES ARE COMPLETE, SHALL BE STABILIZED. 9.2. IN ALL AREAS, TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED IN ACCORDANCE WITH THE STABILIZATION REQUIREMENTS (SECTION 2.2) OF THE 2012 CGP. (SEE TABLE 1 FOR GUIDANCE ON THE SELECTION OF TEMPORARY SOIL STABILIZATION MEASURES.)
 - 9.3. EROSION CONTROL SEED MIX SHALL BE SOWN IN ALL INACTIVE CONSTRUCTION AREAS THAT WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE AND PRIOR TO SEPTEMBER 15, OF ANY GIVEN YEAR, IN ORDER TO ACHIEVE VEGETATIVE STABILIZATION PRIOR TO THE END OF THE GROWING SEASON. 9.4. SOIL TACKIFIERS MAY BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REAPPLIED AS NECESSARY TO MINIMIZE SOIL AND MULCH
 - LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.
- 10. RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES:
 - 10.1. TEMPORARY SEDIMENT BASINS (CGP-SECTION 2.1.3.2) OR SEDIMENT TRAPS (ENV-WQ 1506.10) SHALL BE SIZED TO RETAIN, ON SITE, THE VOLUME OF A 2-YEAR 24-HOUR STORM EVENT FOR ANY AREA OF DISTURBANCE OR 3,600 CUBIC FEET OF STORMWATER RUNOFF PER ACRE OF DISTURBANCE, WHICHEVER IS GREATER. TEMPORARY SEDIMENT BASINS USED TO TREAT STORMWATER RUNOFF FROM AREAS GREATER THAN 5-ACRES OF DISTURBANCE SHALL BE SIZED TO ALSO CONTROL STORMWATER RUNOFF FROM A 10-YEAR 24 HOUR STORM EVENT. ON-SITE RETENTION OF THE 10-YEAR 24-HOUR EVENT IS NOT REQUIRED.
 - 10.2. CONSTRUCT AND STABILIZE DEWATERING INFILTRATION BASINS PRIOR TO ANY EXCAVATION THAT MAY REQUIRE DEWATERING. 10.3. TEMPORARY SEDIMENT BASINS OR TRAPS SHALL BE PLACED AND STABILIZED AT LOCATIONS WHERE CONCENTRATED FLOW (CHANNELS AND PIPES) DISCHARGE TO THE SURROUNDING ENVIRONMENT FROM AREAS OF UNSTABILIZED EARTH DISTURBING ACTIVITIES.

EROSION CONTROL STRATEGIES

- 11. ADDITIONAL EROSION AND SEDIMENT CONTROL GENERAL PRACTICES: TACKIFIERS, AS APPROVED BY THE NHDES. MEASURES (TEMPORARY EROSION CONTROL SEED MIX AND MULCH, SOIL BINDER) OR COVERED WITH ANCHORED TARPS. STABILIZATION OF THE CONTRIBUTING DISTURBED AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL FOR ONE YEAR AFTER PROJECT COMPLETION. PERMANENT DITCHES SHALL BE DIRECTED TO DRAIN TO SEDIMENT BASINS OR STORM WATER COLLECTION AREAS. PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY THE DEPARTMENT.
 - LINE.

BEST MANAGEMENT PRACTICES (BMP) BASED ON AMOUNT OF OPEN CONSTRUCTION AREA

- 12. STRATEGIES SPECIFIC TO OPEN AREAS LESS THAN 5 ACRES: STRATEGIES.
 - 12.2. SLOPES STEEPER THAN 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING. 12.3. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT ALONE.
 - 12.4. AREAS WHERE HAUL ROADS ARE CONSTRUCTED AND STORMWATER CANNOT BE TREATED THE DEPARTMENT WILL CONSIDER INFILTRATION.
 - GRAVEL, OR CRUSHED STONE BASE TO HELP MINIMIZE EROSION ISSUES.
 - 12.6. ALL AREAS THAT CAN BE STABILIZED SHALL BE STABILIZED PRIOR TO OPENING UP NEW TERRITORY. 12.7. DETENTION BASINS SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE A 2 YEAR STORM EVENT.
- 13. STRATEGIES SPECIFIC TO OPEN AREAS BETWEEN 5 AND 10 ACRES:
- TREATMENT OPTIONS USED FOR UNDER 5 ACRES WILL BE UTILIZED.
- ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS.
- 14. STRATEGIES SPECIFIC TO OPEN AREAS OVER 10 ACRES:
- TREATMENT OPTIONS USED FOR UNDER 5 ACRES AND BETWEEN 5 AND 10 ACRES WILL BE UTILIZED.
- AMOUNT OF SEDIMENT IN THE STORMWATER TREATMENT BASINS.
- MONITORING OF THE SYSTEM.

GUIDANCE ON SELECTING TEM

APPLICATION AREAS	(ORY MULCH	H METHODS		HYDRAU	LICALLY	APPLIED N	MULCHES ²	ROLLED	EROSION	CONTROL	BLANKETS ³
	нмт	WC	SG	СВ	НМ	SMM	BFM	FRM	SNSB	DNSB	DNSCB	DNCB
SLOPES ¹						•				-		
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	YES
2:1 SLOPE	YES'	YES'	YES	YES	NO	NO	YES	YES	NO	YES	YES	YES
3:1 SLOPE	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO
4:1 SLOPE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
WINTER STABILIZATION	4T/AC	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
CHANNELS					-	-	•		•		-	
LOW FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
HIGH FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE
НМТ	HAY MULCH & TACK	нм	HYDRAULIC MULCH	SNSB	SINGLE NET STRAW BLANKET
WC	WOOD CHIPS	SMM	STABILIZED MULCH MATRIX	DNSB	DOUBLE NET STRAW BLANKET
SG	STUMP GRINDINGS	BFM	BONDED FIBER MATRIX	DNSCB	2 NET STRAW-COCONUT BLANKET
СВ	COMPOST BLANKET	FRM	FIBER REINFORCED MEDIUM	DNCB	2 NET COCONUT BLANKET

NOTES:

WATER WITHOUT PRIOR WRITTEN APPROVAL FROM THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES.

1. ALL SLOPE STABILIZATION OPTIONS ASSUME A SLOPE LENGTH ≤10 TIMES THE HORIZONTAL DISTANCE COMPONENT OF THE SLOPE, IN FEET. 2. PRODUCTS CONTAINING POLYACRYLAMIDE (PAM) SHALL NOT BE APPLIED DIRECTLY TO OR WITHIN 100 FEET OF ANY SURFACE 3. ALL EROSION CONTROL BLANKETS SHALL BE MADE WITH WILDLIFE FRIENDLY BIODEGRADABLE NETTING.

11.1. USE TEMPORARY MULCHING, PERMANENT MULCHING, TEMPORARY VEGETATIVE COVER, AND PERMANENT VEGETATIVE COVER TO REDUCE THE NEED FOR DUST CONTROL. USE MECHANICAL SWEEPERS ON PAVED SURFACES WHERE NECESSARY TO PREVENT DUST BUILDUP. APPLY WATER, OR OTHER DUST INHIBITING AGENTS OR

11.2. ALL STOCKPILES SHALL BE CONTAINED WITH TEMPORARY PERIMETER CONTROLS. INACTIVE SOIL STOCKPILES SHOULD BE PROTECTED WITH SOIL STABILIZATION 11.3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED IN ACCORDANCE WITH SECTION 645 OF NHDOT SPECIFICATIONS, WEEKLY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25 IN. OF RAIN PER 24-HOUR PERIOD. EROSION AND SEDIMENT CONTROL MEASURES WILL ALSO BE INSPECTED IN ACCORDANCE WITH THE GUIDANCE MEMO FROM THE NHDES CONTAINED WITHIN THE CONTRACT PROPOSAL AND THE EPA CONSTRUCTION GENERAL PERMIT. 11.4. THE CONTRACTOR SHOULD UTILIZE STORM DRAIN INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING A STORM DRAINAGE SYSTEM PRIOR TO THE PERMANENT

11.5. PERMANENT STABILIZATION MEASURES WILL BE CONSTRUCTED AND MAINTAINED IN LOCATIONS AS SHOWN ON THE CONSTRUCTION PLANS TO STABILIZE AREAS. VEGETATIVE STABILIZATION SHALL NOT BE CONSIDERED PERMANENTLY STABILIZED UNTIL VEGETATIVE GROWTH COVERS AT LEAST 85% OF THE DISTURBED AREA. 11.6. CATCH BASINS: CARE SHALL BE TAKEN TO ENSURE THAT SEDIMENTS DO NOT ENTER ANY EXISTING CATCH BASINS DURING CONSTRUCTION. THE CONTRACTOR SHALL PLACE TEMPORARY STONE INLET PROTECTION OVER INLETS IN AREAS OF SOIL DISTURBANCE THAT ARE SUBJECT TO SEDIMENT CONTAMINATION. 11.7. TEMPORARY AND PERMANENT DITCHES SHALL BE CONSTRUCTED, STABILIZED AND MAINTAINED IN A MANNER THAT WILL MINIMIZE SCOUR. TEMPORARY AND 11.8. WINTER EXCAVATION AND EARTHWORK ACTIVITIES NEED TO BE LIMITED IN EXTENT AND DURATION, TO MINIMIZE POTENTIAL EROSION AND SEDIMENTATION IMPACTS. THE AREA OF EXPOSED SOIL SHALL BE LIMITED TO ONE ACRE, OR THAT WHICH CAN BE STABILIZED AT THE END OF EACH DAY UNLESS A WINTER CONSTRUCTION 11.9. CHANNEL PROTECTION MEASURES SHALL BE SUPPLEMENTED WITH PERIMETER CONTROL MEASURES WHEN THE DITCH LINES OCCUR AT THE BOTTOM OF LONG FILL SLOPES. THE PERIMETER CONTROLS SHALL BE INSTALLED ON THE FILL SLOPE TO MINIMIZE THE POTENTIAL FOR FILL SLOPE SEDIMENT DEPOSITS IN THE DITCH

12.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500; ALTERATION OF TERRAIN FOR CONSTRUCTION AND USE ALL CONVENTIONAL BMP

12.5. FOR HAUL ROADS ADJACENT TO SENSITIVE ENVIRONMENTAL AREAS OR STEEPER THAN 5%, THE DEPARTMENT WILL CONSIDER USING EROSION STONE, CRUSHED

13.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL

13.2. DETENTION BASINS WILL BE CONSTRUCTED TO ACCOMMODATE THE 2-YEAR 24-HOUR STORM EVENT AND CONTROL A 10-YEAR 24-HOUR STORM EVENT. 13.3. SLOPES STEEPER THAN A 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS. OTHER ALTERNATIVE MEASURES, SUCH AS BONDED FIBER MATRIXES (BFMS) OR FLEXIBLE GROWTH MEDIUMS (FGMS) MAY BE UTILIZED, IF MEETING THE NHDES APPROVALS AND REGULATIONS. 13.4. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY

14.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL 14.2. THE DEPARTMENT ANTICIPATES THAT SOIL BINDERS WILL BE NEEDED ON ALL SLOPES STEEPER THAN 3:1. IN ORDER TO MINIMIZE EROSION AND REDUCE THE

14.3. THE CONTRACTOR WILL BE REQUIRED TO HAVE AN APPROVED DESIGN IN ACCORDANCE WITH ENV-WQ 1506.12 FOR AN ACTIVE FLOCCULANT TREATMENT SYSTEM TO TREAT AND RELEASE WATER CAPTURED IN STORM WATER BASINS. THE CONTRACTOR SHALL ALSO RETAIN THE SERVICES OF AN ENVIRONMENTAL CONSULTANT WHO HAS DEMONSTRATED EXPERIENCE IN THE DESIGN OF FLOCCULANT TREATMENT SYSTEMS. THE CONSULTANT WILL ALSO BE RESPONSIBLE FOR THE IMPLEMENTATION AND

TABLE 1			
IPORARY SC	IL STAB	ILIZATION	MEASURES

	STATE OF NEW HAMPSHIRE			
	DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
	EROSION	CONTROL	STRAT	TEGIES
REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
12-21-2015	15937erosstrat	15937	8	10

