



Understanding Construction Project Plans

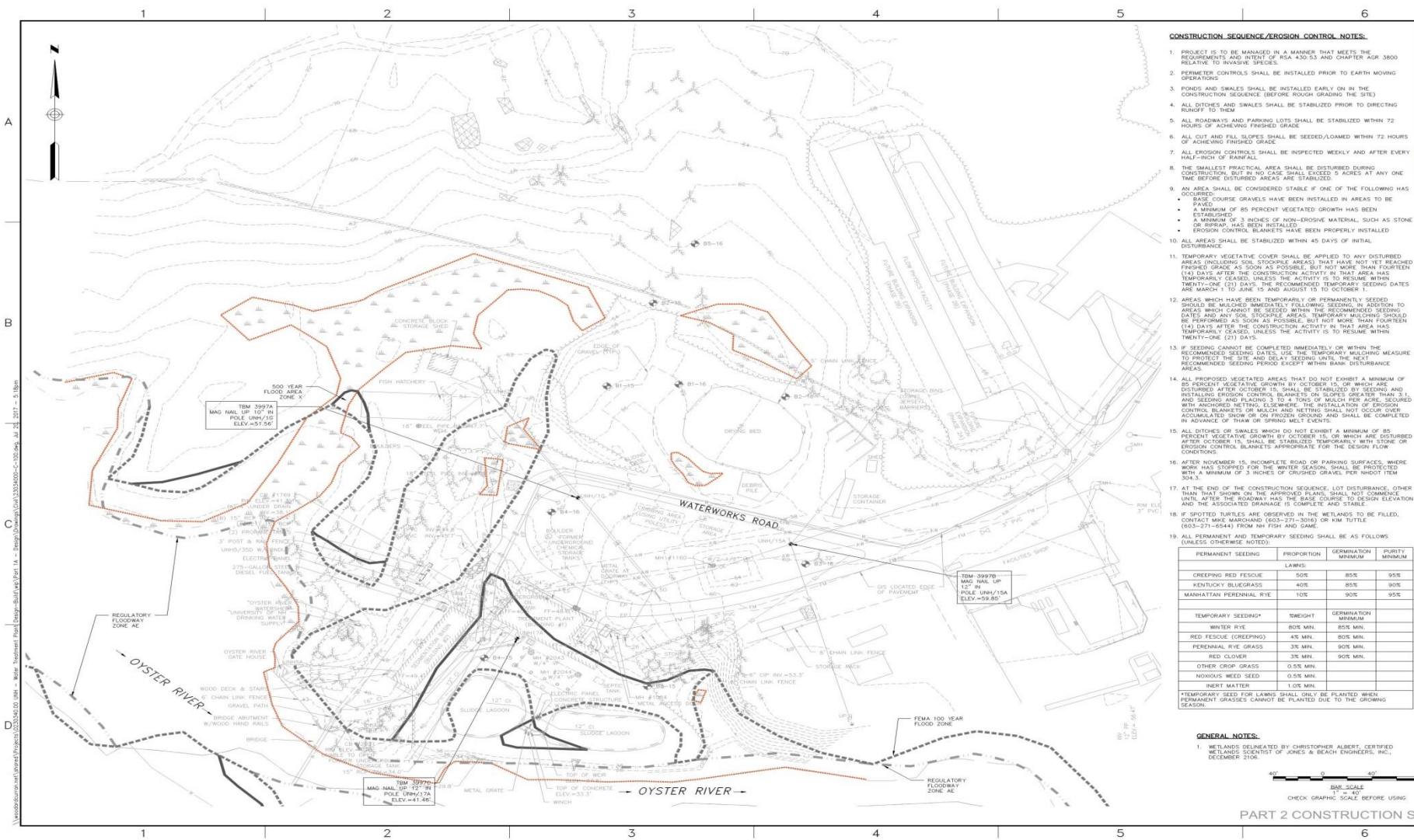
PERMITS

- Alteration of Terrain
 - Wetlands
 - Shoreland

References

- NHDES Stormwater Manual
- Wetlands Best Management Practice Techniques for Avoidance And Minimization
- UMRLAC Permit Application Review Guidance June 2017
- AOT Permit Check List

Existing Conditions Plan



CONSTRUCTION SEQUENCE/EROSION CONTROL NOTES:

- PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
- PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH-MOVING OPERATIONS.
- FONDS AND SWALES SHALL BE INSTALLED EARLY ON IN THE CONSTRUCTION SEQUENCE, BEFORE ROUGH GRADING THE SITES.
- ALL DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
- ALL ROADWAYS AND PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOADED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
- THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
 - BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED.
 - A MINIMUM OF 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED.
 - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL, SUCH AS STONE OR BRICK-CONTROL, HAS BEEN INSTALLED.
 - EROSION CONTROL MEASURES HAVE BEEN PROPERLY INSTALLED.
- ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
- TEMPORARY VEGETATIVE COVER SHALL BE APPLIED TO ANY DISTURBED AREAS (INCLUDING SOIL STOCKPILE AREAS) THAT HAVE NOT YET REACHED FINISHED GRADE 45 DAYS AFTER CONSTRUCTION, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY CEASED, UNLESS THE ACTIVITY IS TO RESUME WITHIN TWENTY-ONE (21) DAYS. THE RECOMMENDED TEMPORARY SEEDING DATES ARE MARCH 1 TO JUNE 15 AND AUGUST 15 TO OCTOBER 1.
- AREAS WHICH HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED SHOULD BE MULCHED IMMEDIATELY FOLLOWING SEEDING. IN ADDITION TO AREAS WHICH CANNOT BE SEEDED WITHIN THE RECOMMENDED SEEDING DATES AND ANY SOIL STOCKPILE AREAS, TEMPORARY MULCHING SHOULD BE PERFORMED AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY CEASED, UNLESS THE ACTIVITY IS TO RESUME WITHIN TWENTY-ONE (21) DAYS.
- IF SEEDING CANNOT BE COMPLETED IMMEDIATELY OR WITHIN THE RECOMMENDED SEEDING DATES, USE THE TEMPORARY MULCHING MEASURE TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD EXCEPT WITHIN BANK DISTURBANCE AREAS.
- ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING. MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER 1000 SQ.FT.
- AT THE END OF THE CONSTRUCTION SEQUENCE, LOT DISTURBANCE OTHER THAN THAT SHOWN ON THE APPROVED PLANS, SHALL NOT COMMENCE UNTIL AFTER THE ROADWAY HAS THE BASE COURSE TO DESIGN ELEVATION AND THE ASSOCIATED DRAINAGE IS COMPLETE AND STABLE.
- IF SPOTTED TURTLES ARE OBSERVED IN THE WETLANDS TO BE FILLED, CONTACT MIKE MARCHAND (603-271-5016) OR KIM TUTTLE (603-271-6844) FROM NH FISH AND GAME.
- ALL PERMANENT AND TEMPORARY SEEDING SHALL BE AS FOLLOWS (UNLESS OTHERWISE NOTED):

PERMANENT SEEDING	PROPORTION	GERMINATION MINIMUM	PURITY MINIMUM
LAMBS:			
CREeping RED FESCUE	50%	85%	95%
KENTUCKY BLUEGRASS	40%	85%	90%
MANHATTAN PERENNIAL RYE	10%	90%	95%
TEMPORARY SEEDING*	WEIGHT	GERMINATION MINIMUM	
WINTER RYE	80% MIN.	80% MIN.	
RED FESCUE (CREeping)	4% MIN.	80% MIN.	
PERENNIAL RYE GRASS	3% MIN.	90% MIN.	
RED CLOVER	3% MIN.	90% MIN.	
OTHER CROP GRASS	0.5% MIN.		
NOXIOUS WEED SEED	0.5% MIN.		
INERT MATTER	1.0% MIN.		

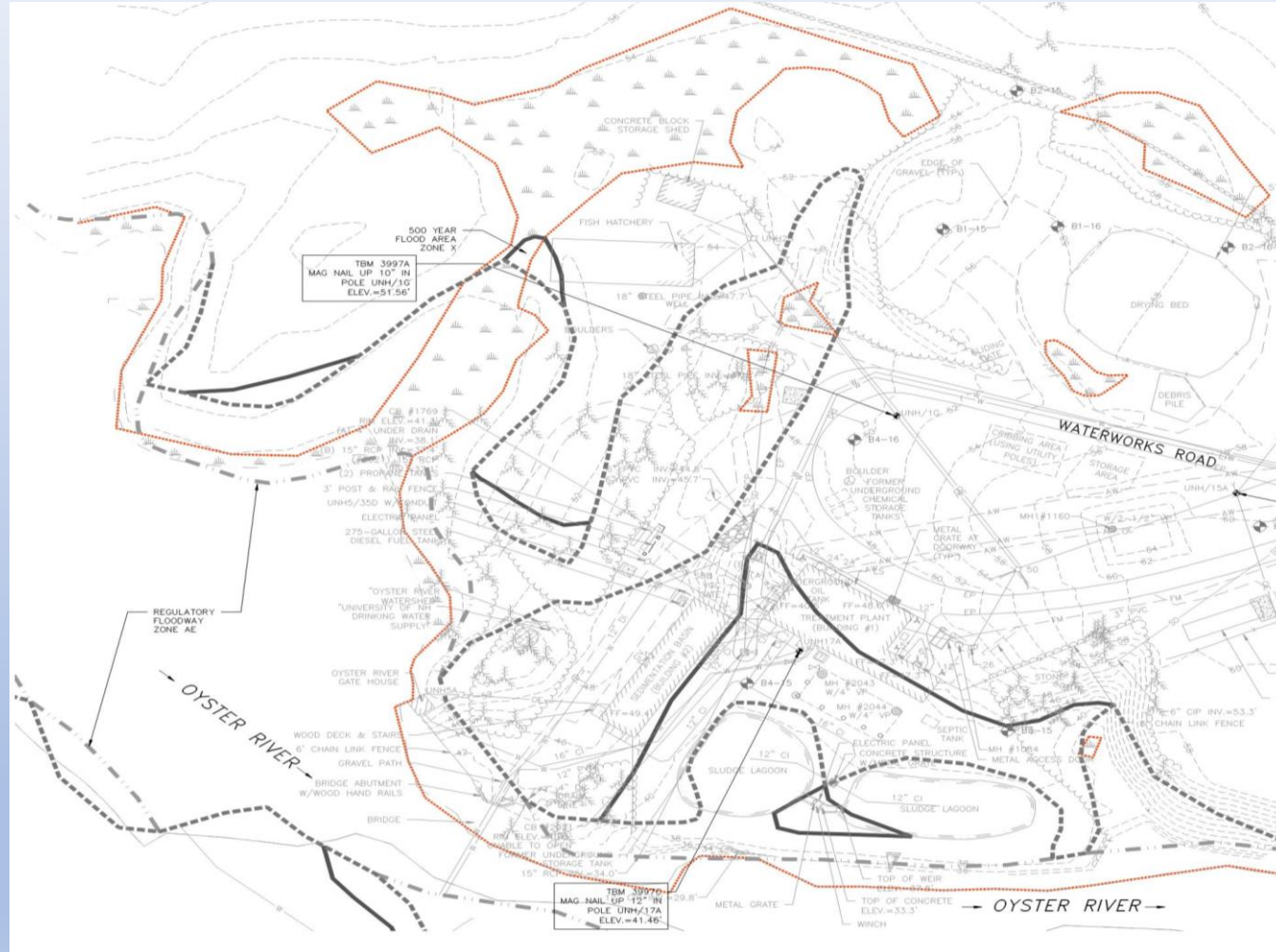
GENERAL NOTES:

- WETLANDS DELINEATED BY CHRISTOPHER ALBERT, CERTIFIED WETLANDS SCIENTIST OF JONES & BEACH ENGINEERS, INC., DECEMBER 2106.



PART 2 CONSTRUCTION S

Existing Conditions Plan



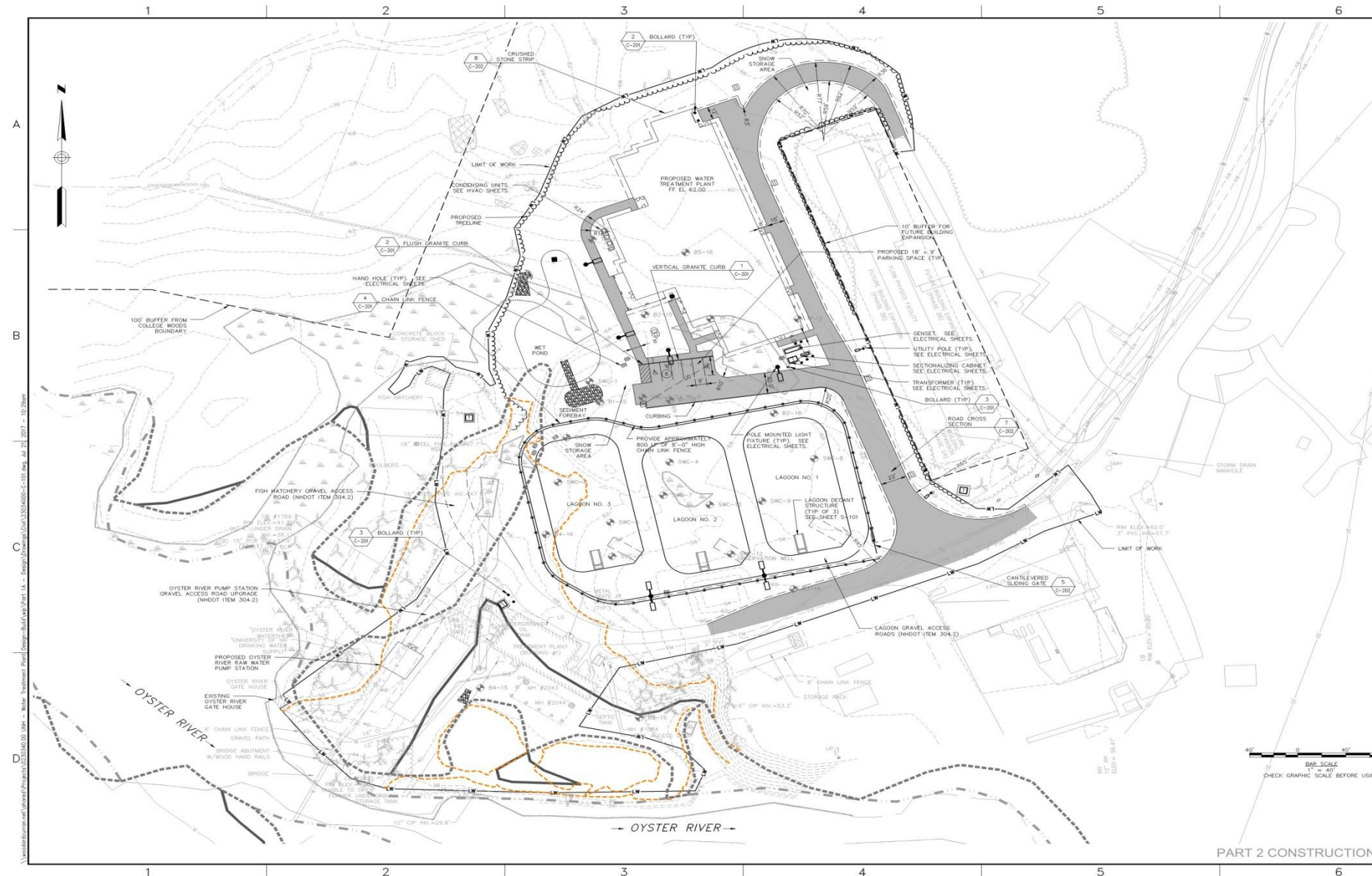
Review Items

Wetlands

Flood plains

Existing Buildings &
Utilities

Proposed Layout Plan



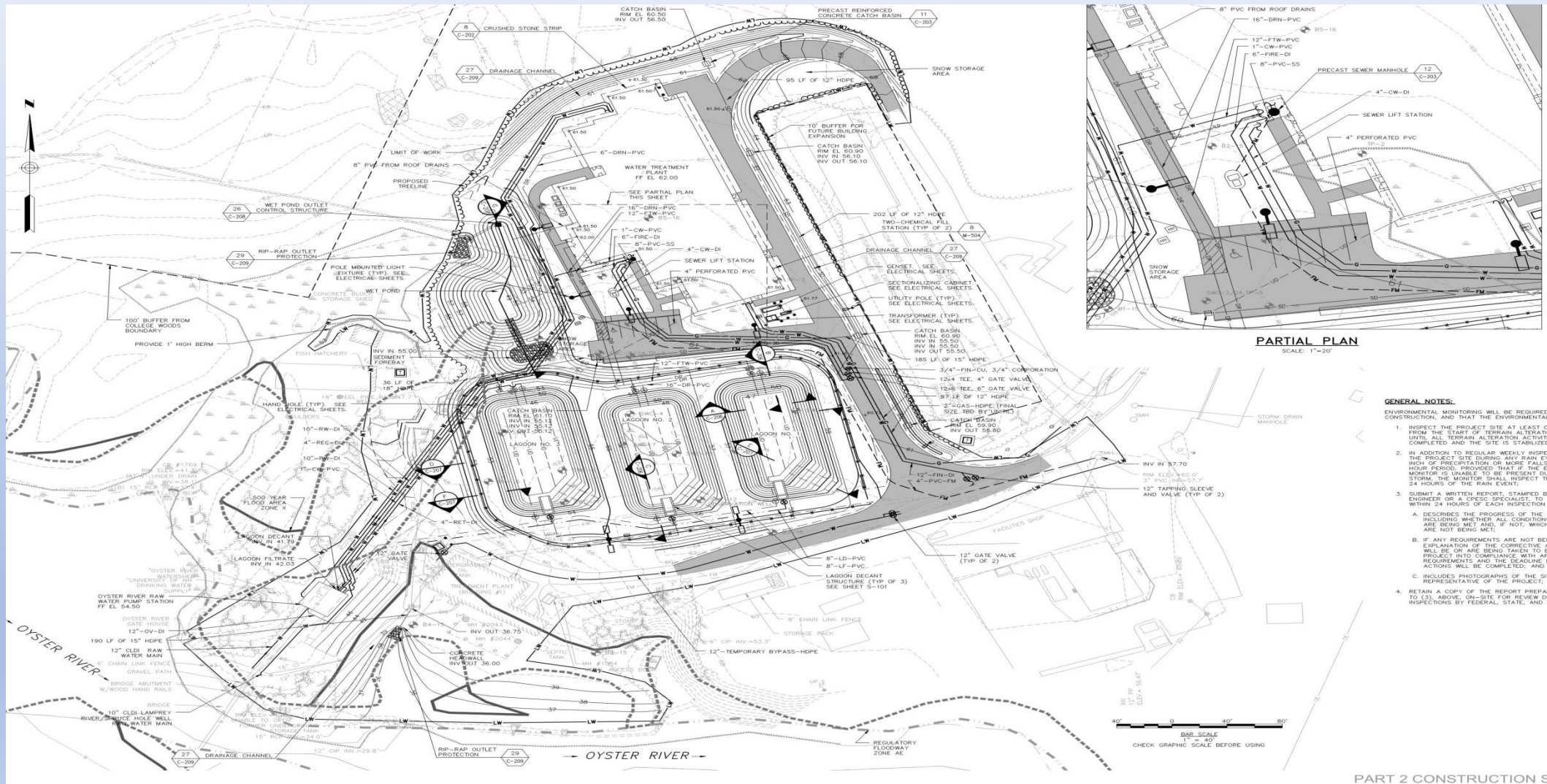
Potential
Impacts
Wetlands
Flood Plains

Proposed Layout Plan

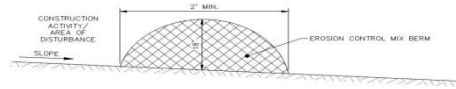
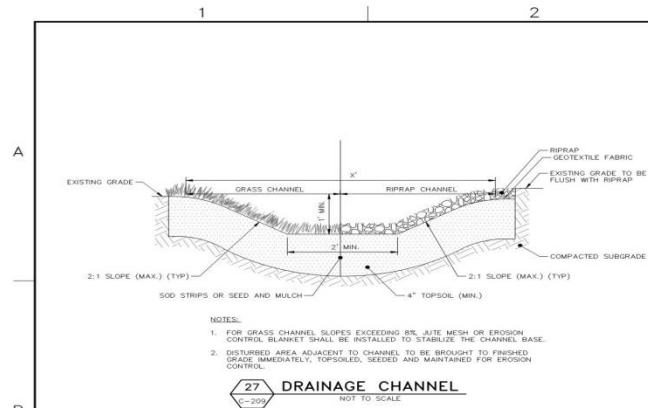


Potential
Impacts
Wetlands
Flood Plains

Proposed Grading Plan



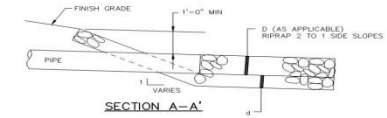
Details



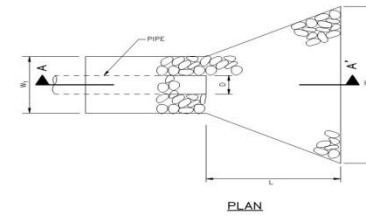
- NOTES:
1. ORGANIC MATERIAL MIXES MAY BE MANUFACTURED ON OR OFF THE PROJECT SITE. IT MUST BE APPROVED PRIMARILY OF ORGANIC MATERIAL AND MAY INCLUDE: SHREDED BARK, STUMP DRIBBINGS, COMPOSTED BARK, OR ACCEPTED PROCESSED WOOD. RECYCLED RUBBER, CRUMBED RUBBER, OR OTHER CONSTRUCTION WASTE IS NOT ACCEPTED. RECYCLED WOOD PRODUCTS WILL NOT BE ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX.
 2. ORGANIC MATERIAL MIXES MUST BE MANUFACTURED AND APPLIED TO THE PROJECT SITE. ORGANIC MATERIAL MIXES MUST CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL DEBRIS, AND OTHER TOXIC MATERIALS. ORGANIC MATERIAL MIXES MUST BE APPLIED TO THE MIX WITH THE FOLLOWING STANDARDS:
 - a. ORGANIC MATERIAL CONTENT SHALL BE BETWEEN 80 AND 100% DRY WEIGHT BASIS.
 - b. PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A #20 SCREEN AND A MINIMUM OF 70% MAXIMUM OF 85% PASSING A 0.75" SCREEN.
 - c. THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED.
 - d. LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
 - e. SOLUBLE SALTS CONTENT SHALL BE < 0.4 MAHOS/CM.
 - f. THE PH SHOULD FALL BETWEEN 5.0 AND 8.0.

28 EROSION CONTROL MIX BERM
C-209 NOT TO SCALE

PIPE DIA.	WIDTH		LENGTH	RIPRAP	DEPTH
D	W ₁	W ₂	L	D ₅₀	d
15"	3.8'	8.9'	12.8'	6.0"	12"
18"	4.5'	12.6'	20.1'	6.0"	12"

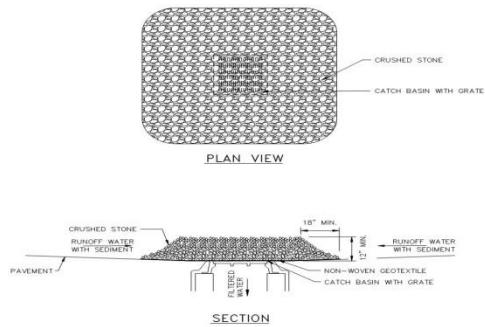


SECTION A-A'



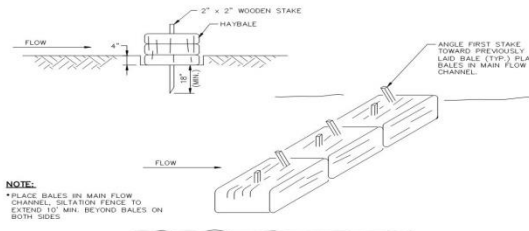
PLAN

29 RIP-RAP OUTLET PROTECTION
C-209 NOT TO SCALE



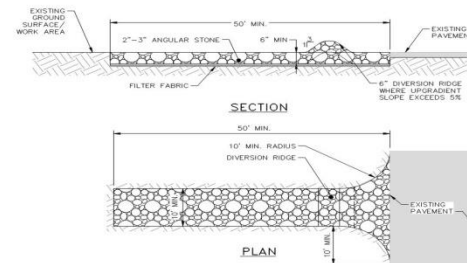
- NOTES:**
- TO BE USED AT CATCH BASINS THAT ARE LOCATED DOWNSLOPE FROM EXCAVATED AREAS.
 - IN TRAFFIC AREAS, PROVIDE ACF ENVIRONMENTAL, INC. HIGH FLOW SLITSACK, SLT SAVER INLET FILTER, OR EQUIV INSTALLED PER MAINTENANCE'S RECOMMENDATIONS, IN LIEU OF CRUSHED STONE MOUND.
- MAINTENANCE:** INSPECT FOR BREAKS IN THE STONE, GEOTEXTILE BARRIER OR MANUFACTURED PRODUCT. REGULARLY REMOVE AND PROPERLY DISPOSE OF ACCUMULATED SEDIMENT.
- REMOVAL:** PROTECTION SHALL BE CAREFULLY REMOVED WHEN ALL UP-SLOPE DISTURBED AREAS ARE STABILIZED.

30 STORM DRAIN INLET PROTECTION
C-209 NOT TO SCALE



- NOTE:**
- PLACE BALES IN MAIN FLOW CHANNEL, SILTATION FENCE TO EXTEND 10' MIN. BEYOND BALES ON BOTH SIDES

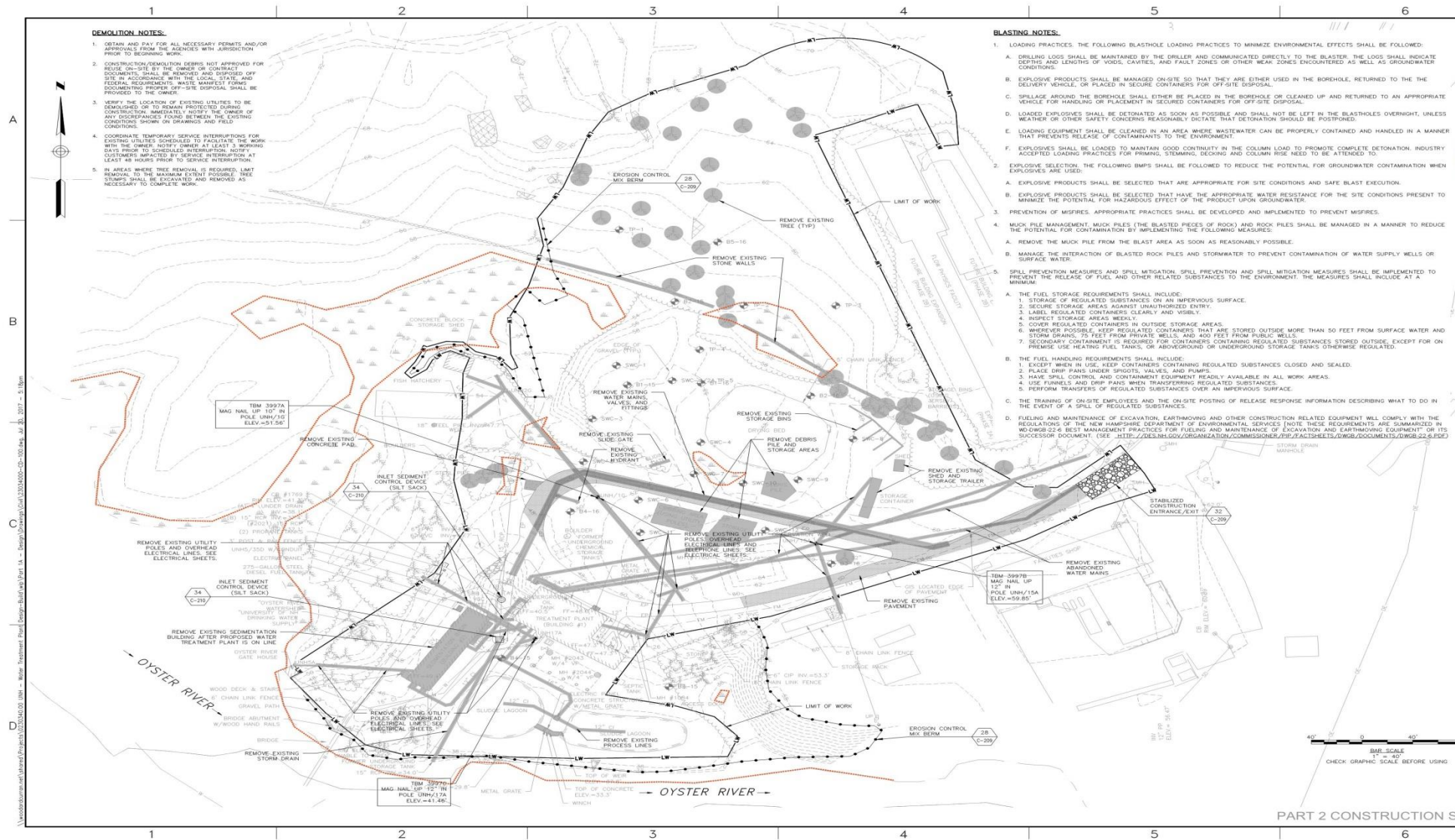
31 HAYBALE BARRIER
C-209 NOT TO SCALE



- NOTES:
1. GRADE TOWARDS SEDIMENT BARRIER WHEN NECESSARY TO MANAGE FLOW.
 2. INCREASE MINIMUM LENGTH TO 100' WHERE TRACKED SEDIMENTS CONTAIN LESS THAN 80% SAND OR AS NECESSARY FOR HEAVY CONSTRUCTION.

32 STABILIZED CONSTRUCTION ENTRANCE/EXIT
C-209 NOT TO SCALE

Erosion Control Plan



Stormwater Management

- Pre vs Post
 - Change in areas
 - Change in soil type

Table 7-1: Peak Stormwater Runoff Rate Summary

Discharge Point	Condition	Peak Flow for Given Storms (cfs)				
		1-year	2-year	10-year	50-year	100-year
Oyster River	Existing	4.61	6.95	15.23	29.27	37.66
	Proposed	4.08	6.12	13.61	27.54	35.32
	Δ Discharge	-0.53	-0.83	-1.62	-1.73	-2.34

Table 2-1: Existing Conditions - Drainage Area Characteristics Summary

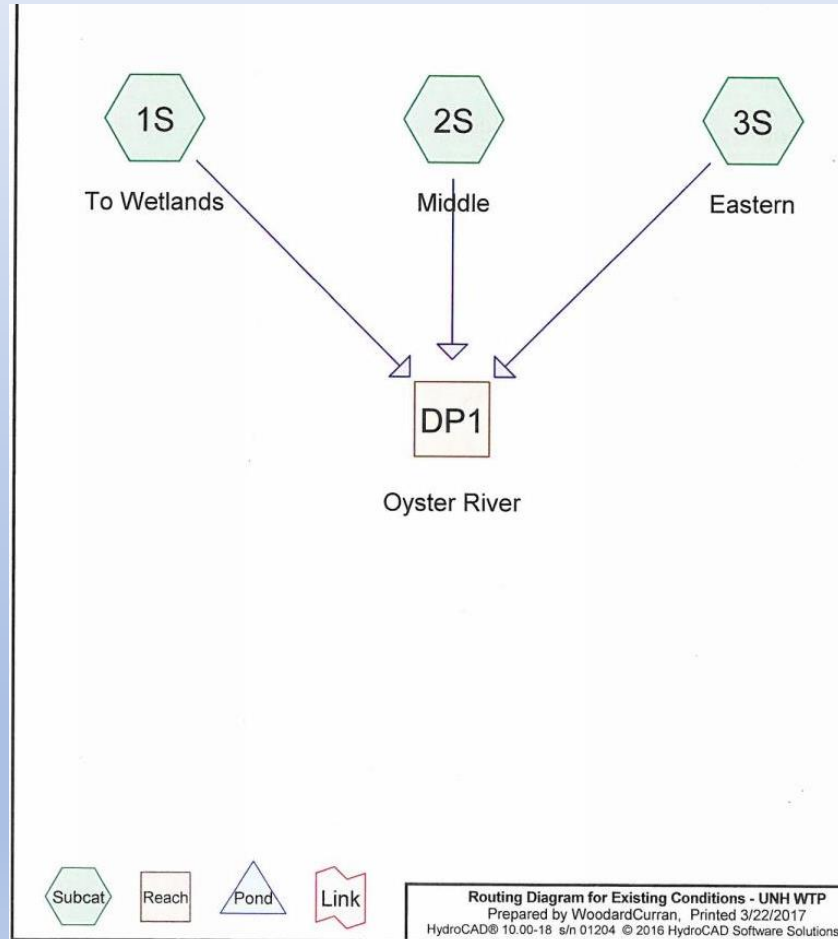
Discharge Point	Sub Areas	Area (Acres)	T _c (min.)	CN (weighted)
Oyster River (South of project site – DP1)	To Wetlands (1S)	3.965	49.5	75
	Middle Section (2S)	5.452	39.3	74
	Eastern Section (3S)	2.758	25.3	81
Total Weighted CN				76

Table 3-1: Proposed Design – Drainage Area Characteristics Summary

Discharge Point	Sub Areas	Area (Acres)	T _c (mins.)	CN
Oyster River (South of Project Site) (DP1)	To Wetlands (1S)	4.167	49.5	75
	Woods (2S)	0.524	19.2	71
	Eastern Section (3S)	2.630	37.8	82
	Middle Section (4S)	3.463	27.4	63
	Building (5S)	0.481	6.0	98
	North CB (6S)	0.265	6.0	86
	Central CB (7S)	0.370	6.0	85
	Parking/Front (8S)	0.180	6.0	87
	South CB (9S)	0.094	6.0	88
Total Weighted CN				74

Stormwater Management

- Pre HYDRO-CAD



Existing Conditions - UNH WTP

Prepared by WoodardCurran

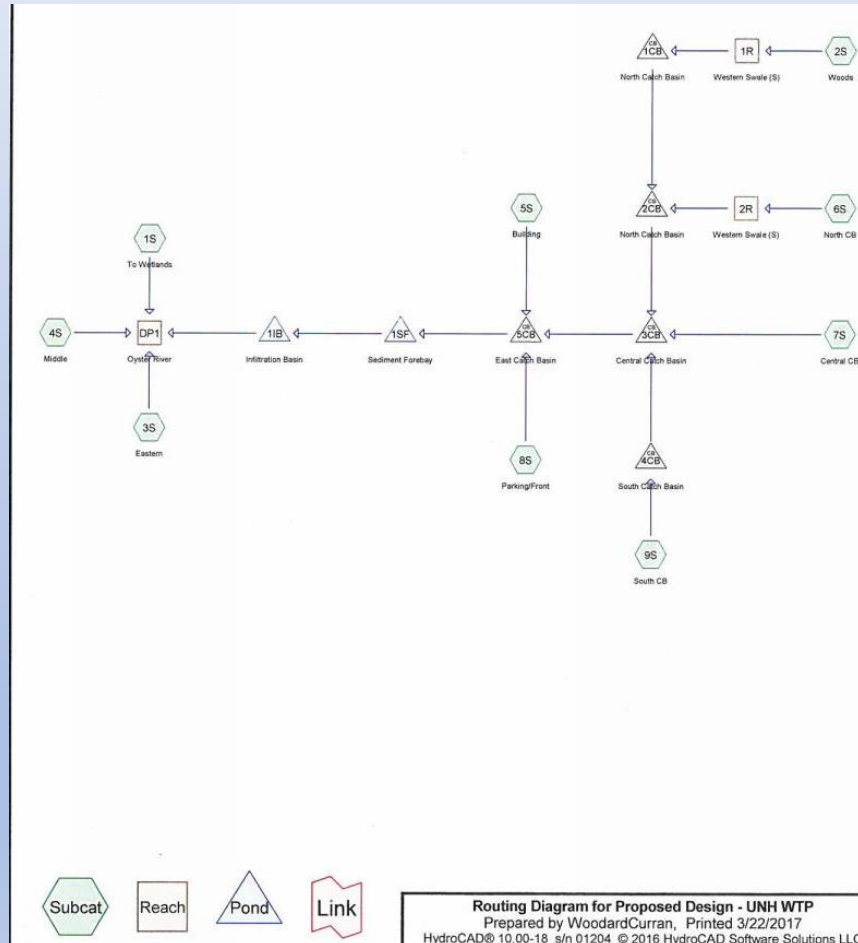
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.445	98	Buildings (1S, 2S, 3S)
0.144	91	Drying Bed (2S)
5.108	70	Forest (1S, 2S, 3S)
4.479	74	Grass (1S, 2S, 3S)
0.380	89	Gravel (1S, 2S)
0.153	1	Lagoons - Does not produce runoff (2S)
0.841	98	Pavement (2S, 3S)
0.625	98	Wetlands (1S, 2S)
12.175	76	TOTAL AREA

Stormwater Management

- Proposed HYDRO-CAD



Proposed Design - UNH WTP

Prepared by WoodardCurran

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.183	89	(1S, 4S, 6S, 7S, 8S)
1.848	98	(1S, 3S, 4S, 6S, 7S, 8S, 9S)
1.842	70	(1S, 2S, 3S, 4S)
7.215	74	(1S, 2S, 3S, 4S, 6S, 7S, 8S, 9S)
0.605	1	(4S)
0.481	98	Roofs, HSG C (5S)
12.174	75	TOTAL AREA

Questions ?