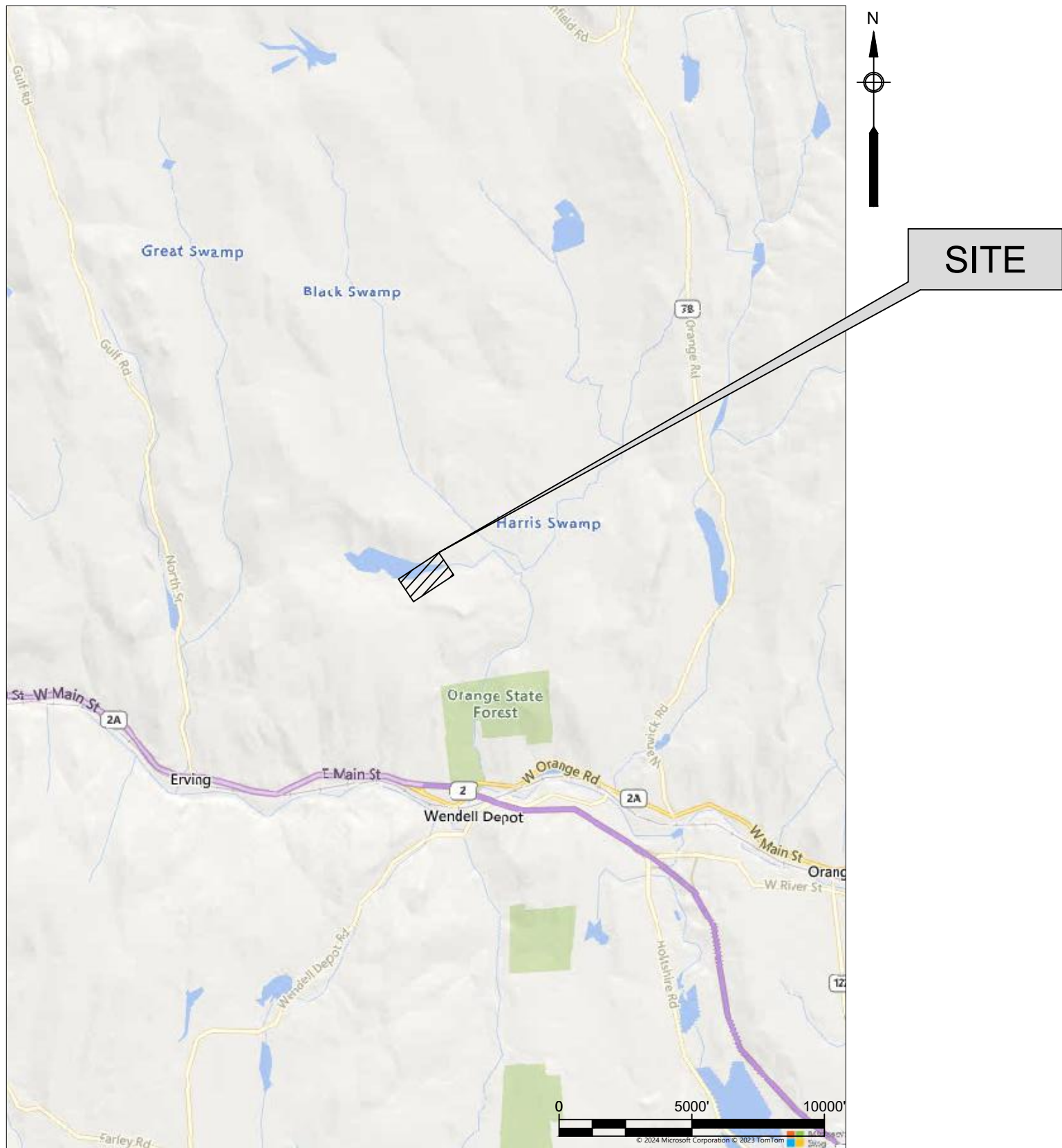


LAUREL LAKE
DRAINAGE INFRASTRUCTURE
MAINTENANCE & REPAIRS
WARWICK, MASSACHUSETTS
ISSUED FOR PERMIT
(REVISION 1)



SITE LOCATION

AECOM
250 APOLLO DRIVE
CHELMSFORD, MA 01824



Date: 03-01-2024

RANDALL TWISS, P.E.
MAPE Lic. No. 50236

ENGINEER'S CERTIFICATION:

THE UNDERSIGNED HEREBY CERTIFIES THIS PLAN TO BE AN
APPROPRIATE REPRESENTATION OF THE PROPOSED
SITE FEATURES. THE COMPLIANCE OF THE IMPLEMENTATION OF
CONTRACT WORK IS THE CONTRACTOR'S SOLE RESPONSIBILITY.

NOTE:
THIS SET OF DRAWINGS DEPICTS INFORMATION USING DIFFERENT COLORS IN
ADDITION TO VARIOUS LINES, SYMBOLS AND TEXT. USER IS CAUTIONED THAT
ONLY COLOR DRAWINGS WILL CONVEY THE COMPLETE PROJECT
INFORMATION. IMPORTANT INFORMATION WILL NOT BE EVIDENT ON BLACK
AND WHITE/GRAYSCALE DRAWINGS DUE TO LACK OF COLOR.

<u>SHEET NO.</u>	<u>TITLE</u>
T-01	COVER SHEET
G-01	GENERAL NOTES
EC-01 - EC-03	EXISTING CONDITIONS PLAN SHEETS
SP-01 - SP-03	SITE PREPARATION & EROSION CONTROL PLAN SHEETS
DP-01 - DP-03	DRAINAGE PLAN SHEETS
EXC-01 - EXC-03	EXCAVATION PLAN SHEETS
FG-01 - FG-03	FINAL GRADE PLAN SHEETS
R-01 - R-03	RESTORATION PLAN SHEETS
XS-01 - XS-08	CROSS SECTIONS PLAN SHEETS
D-01 - D-04	DETAIL SHEETS

OWNER
MASSACHUSETTS DEPARTMENT
OF CONSERVATION AND RECREATION
10 PARK PLAZA, SUITE 6620
BOSTON, MA 02116
www.mass.parks@mass.gov
www.mass.gov/orgs/departement-of-conservation-recreation

ENGINEER
AECOM
250 APOLLO DRIVE
CHELMSFORD, MA 01824
978-905-2100

SURVEY NOTES:

1. HORIZONTAL DATUM: MASSACHUSETTS STATE PLANE, MAINLAND ZONE, NAD 83, U.S. FEET (MA83F)
2. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM (NAVD 88)

UTILITY NOTES:

1. UTILITY LOCATIONS SHOWN HEREIN FROM FIELD LOCATIONS OF SURFACE STRUCTURES. NO UNDERGROUND UTILITIES WERE INCLUDED AS PART OF THE SURVEY.
2. THE LOCATION OF THE EXISTING UTILITIES SHOWN ON THESE DRAWINGS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE CONDITION OF ALL ABANDONED UTILITIES THAT INTERFERE WITH THE WORK PRIOR TO DISTURBANCE OR MODIFICATION. THE CONTRACTOR SHALL WORK WITH THE UTILITY OWNER TO CONFIRM THAT UTILITIES HAVE BEEN ABANDONED AND TO DETERMINE WHAT ACTION SHOULD BE TAKEN.
4. THE SIZE AND TYPE OF BURIED UTILITIES EXPOSED OR MODIFIED BY THE CONTRACTOR SHALL BE ACCURATELY NOTED AND LOCATED VIA GLOBAL POSITIONING SYSTEM SURVEY OR SWING TIES FROM KNOWN OBJECT IN DRAWINGS TO ALLOW FOR ACCURATE AS-BUILT DRAWINGS.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROMPTLY NOTIFY THE ENGINEER OF ANY CONFLICT WITH EXISTING UTILITIES.
6. ALL EXISTING FACILITIES AND UTILITIES NOT SPECIFICALLY IDENTIFIED FOR REMOVAL SHALL BE PROTECTED THROUGHOUT CONSTRUCTION OR RESTORED AT COMPLETION OF THE WORK.

CONSTRUCTION ACCESS/ TRAFFIC CONTROL NOTES:

1. THE CONTRACTOR SHALL PROVIDE A TRAFFIC PLAN. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR IMPLEMENTING REQUIRED TRAFFIC CONTROLS.
2. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING ANY REQUIRED TRAFFIC CONTROL INCLUDING, BUT NOT LIMITED TO, SIGNAGE AND FLAGGERS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARING PUBLIC RIGHT-OF-WAYS OF ALL MUD AND DEBRIS TRACKED FROM THE SITE, INCLUDING POLICE DETAIL IF REQUIRED.
4. ALL EQUIPMENT, MATERIALS, AND PERSONNEL SHALL REMAIN WITHIN THE CONSTRUCTION LIMITS OF WORK.
5. ALL DISTURBED AREAS INCLUDING ROADS AND ACCESS ROUTES SHALL BE RESTORED TO ORIGINAL CONDITION. ALL DISTURBED AREAS OUTSIDE THE LIMITS OF WORK SHALL BE RESTORED TO ORIGINAL CONDITION.

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL CONFINE CONSTRUCTION ACTIVITIES TO AREAS DEFINED BY THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL PRESERVE LAND RESOURCES WITHIN THE PROJECT SITE BOUNDARIES AND OUTSIDE LIMITS OF THE WORK AS MAY BE AFFECTED BY THE WORK OF THIS CONTRACT IN THEIR PRESENT CONDITION, OR RESTORE THOSE AFFECTED TO A CONDITION AFTER COMPLETION OF CONSTRUCTION THAT WILL APPEAR TO BE NATURAL.
2. THE CONTRACTOR SHALL RESTORE TREES OR LANDSCAPE FEATURES SCARRED OR DAMAGED BY EQUIPMENT OR OPERATIONS AS NEARLY AS POSSIBLE TO ORIGINAL CONDITION. THE CONTRACTOR SHALL NOT DEFACE, INJURE OR DESTROY TREES OR SHRUBS, NOR REMOVE OR CUT THEM WITHOUT WRITTEN PERMISSION FROM DCR. THE CONTRACTOR SHALL PROTECT MONUMENTS AND MARKERS AT ALL TIMES.
3. THE CONTRACTOR SHALL NOT POLLUTE WATERWAYS. THE CONTRACTOR SHALL COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS CONCERNING POLLUTION OF RIVERS AND STREAMS. THE CONTRACTOR SHALL PERFORM WORK UNDER THIS CONTRACT IN SUCH A MANNER THAT OBJECTIONABLE CONDITIONS WILL NOT BE CREATED ON OR ADJACENT TO PROJECT SITE AREAS.
4. THE CONTRACTOR SHALL MAINTAIN ACCESS AREAS AND OTHER WORK AREAS WITHIN OR BEYOND THE PROJECT SITE BOUNDARIES FREE FROM DUST WHICH WOULD CAUSE A HAZARD OR NUISANCE TO OTHERS. THE CONTRACTOR SHALL PERFORM DUST CONTROL AS THE WORK PROCEEDS AND WHENEVER A NUISANCE OR HAZARD OCCURS.
5. THE CONTRACTOR SHALL PROVIDE METHODS DURING DEWATERING OPERATIONS TO CONTROL STORMWATER RUNOFF SO THAT SILT OR DEBRIS IS NOT ALLOW TO ENTER EXISTING DRAINAGE FACILITIES OR CREATE NUISANCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING EXISTING OR NEW FACILITIES IF SILTATION OCCURS DUE TO THE CONTRACTOR'S OPERATIONS.
6. THE CONTRACTOR SHALL REMOVE ALL CONSTRUCTION SIGNS UPON PROJECT COMPLETION.
7. THE CONTRACTOR SHALL MAINTAIN FACILITIES CONSTRUCTED, AS APPLICABLE, FOR POLLUTION CONTROL AS LONG AS THE OPERATIONS CREATING THE PARTICULAR POLLUTANT ARE BEING CARRIED OUT, OR UNTIL THE MATERIAL CONCERNED HAS BECOME STABILIZED TO THE EXTENT THAT POLLUTION IS NO LONGER CREATED.
8. THE CONTRACTOR SHALL SCHEDULE AND EXECUTE WORK SO AS TO MINIMIZE DISTURBANCE OF PUBLIC ROADWAY TRAFFIC.
9. THE CONTRACTOR SHALL OBTAIN ANY CONSTRUCTION-SPECIFIC PERMITS AND AUTHORIZATIONS REQUIRED FOR THE WORK, PRIOR TO INITIATING CONSTRUCTION ACTIVITIES.
10. A NIGHT CAP/PLUG, PROVIDED BY PIPE SUPPLIER, SHALL BE USED TO CAP THE PIPE AT THE END OF EACH WORK DAY.
11. WATER MAINS TO BE INSTALLED TO A MINIMUM DEPTH OF 5'-6" TO TOP OF PIPE. PROVIDE 2" RIGID BOARD INSULATION WHERE DEPTH OF COVER IS LESS THAN 5'-6" AS APPROVED BY ENGINEER.
12. THE CONTRACTOR SHALL PERFORM ALL WORK RELATED TO ASBESTOS CEMENT PIPE PER ALL FEDERAL, STATE AND LOCAL REQUIREMENTS, INCLUDING BUT NOT LIMITED TO THE REQUIREMENTS OF THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION ASBESTOS CEMENT PIPE GUIDANCE DOCUMENT (LATEST REVISION) AND NESHPAT: 40 CFR 61 SUBPART M.

EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL MEASURES, AS SHOWN ON DRAWINGS, PRIOR TO START OF CONSTRUCTION OR AS DIRECTED BY ENGINEER. THE CONTRACTOR SHALL INSPECT AND MAINTAIN THESE MEASURES ON A CONTINUAL BASIS THROUGHOUT CONSTRUCTION AND UNTIL THE PROJECT SITE IS RESTORED AND BECOMES STABILIZED.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION AND MASSACHUSETTS DEPARTMENT OF TRANSPORTATION GUIDELINES/STANDARDS FOR EROSION AND SEDIMENT CONTROL IN MASSACHUSETTS.
3. THE CONTRACTOR SHALL PROTECT ALL AREAS DISTURBED BY CONSTRUCTION THAT ARE SUBJECT TO EROSION (EITHER NEWLY FILLED OR EXCAVATED). ALL AREAS USED FOR CONTRACTOR STAGING AND ALL TEMPORARY SOIL STOCKPILE AREAS WITH APPROPRIATE EROSION CONTROL MEASURES.
4. EROSION AND SEDIMENT CONTROLS WILL BE REVIEWED BY A QUALIFIED PERSON EMPLOYED BY DCR ONCE EVERY 7 DAYS AND AFTER STORM EVENTS LARGER THAN 0.5 INCHES OF RAIN IN 24-HOURS. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING OR ADDING EROSION AND SEDIMENT CONTROL MEASURES AS DIRECTED BY THE DCR'S REPRESENTATIVE.
5. THE CONTRACTOR SHALL EXCAVATE SEDIMENT TRAPPED BEHIND THE BARRIERS IN ACCORDANCE WITH THE DRAWINGS. REMOVED SEDIMENT SHALL BE REUSED ON SITE OUTSIDE OF THE FLOOD HAZARD AREA AND AS DIRECTED BY ENGINEER.
6. EROSION CONTROLS SHALL REMAIN IN PLACE UNTIL THE SEEDED AREA BECOMES AT LEAST 75% ESTABLISHED AS VERIFIED BY DCR. THE CONTRACTOR SHALL REMOVE THESE CONTROLS AS DESCRIBED IN THE DRAWINGS.
7. THE CONTRACTOR SHALL APPLY MAINTENANCE MEASURES AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. AFTER EACH RAINFALL, THE CONTRACTOR SHALL VISUALLY INSPECT ALL INSTALLED EROSION CONTROL MEASURES AND REPAIR THOSE NECESSARY TO ENSURE THEIR CONTINUING FUNCTION AS DESIGNED. FOLLOWING THE FINAL PLANTING (IF PLANTINGS ARE REQUIRED IN DRAWINGS), THE CONTRACTOR SHALL INSPECT THE SITE EVERY THIRTY DAYS UNTIL THE PLANTS HAVE BEEN 95% ESTABLISHED AS VERIFIED BY DCR. IF EROSION OCCURS BEFORE THE PLANTING HAS BECOME ESTABLISHED OR IF THERE ARE AREAS WHERE GROWTH IS INSUFFICIENT, THE CONTRACTOR SHALL REPLANT THESE AREAS AS REQUIRED, AND MAKE FOLLOW-UP INSPECTIONS.
8. FINAL PLANTING/SEEDING OF THE DISTURBED AREAS SHALL OCCUR FROM APRIL 15 AND JUNE 1 AND SEPTEMBER 15 AND OCTOBER 15. IF FINAL PLANTING OF THE DISTURBED AREAS IS NOT COMPLETED DURING THIS PERIOD, THE CONTRACTOR SHALL GRADE AND SMOOTH THESE AREAS AND PLANT THEM WITH TEMPORARY SEEDING, IN ACCORDANCE WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION'S GUIDELINES OR AS DIRECTED BY DCR. FINAL PLANTING SHALL BE COMPLETED IN THE FOLLOWING PLANTING SEASON.
9. THE CONTRACTOR SHALL PERFORM STREET SWEEPING ON PUBLIC ROADWAYS AND PARKING AREAS AS DIRECTED BY DCR.

INVASIVE SPECIES CONTROL:

1. FOR A LIST OF INVASIVE AND OTHER UNACCEPTABLE PLANT SPECIES REFER TO THE MASSACHUSETTS INVASIVE PLANT ADVISORY GROUP (MIPAG) EVALUATION OF NON-NATIVE PLANT SPECIES FOR INVASIVENESS IN MASSACHUSETTS (APRIL 1, 2005). PLANT MATERIALS LISTED AS AN INVASIVE SPECIES OR UNACCEPTABLE PLANT SPECIES SHALL NOT BE USED ON THE PROJECT.
2. SOIL MATERIAL BROUGHT TO THE SITE SHALL NOT BE FROM SOURCES KNOWN TO CONTAIN INVASIVE SPECIES.
3. SOIL EXCAVATED AND REMOVED THAT CONTAINS INVASIVE PLANT SEEDS OR FRAGMENTS SHOULD BE TREATED AS CONTAMINATED (VERIFIED BY DCR). THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER DISPOSAL OF THIS MATERIAL.

GENERAL NOTES:

1. CONSTRUCTION DRAWINGS (DRAWINGS) ARE ONLY A COMPONENT OF THE CONTRACT DOCUMENTS FOR THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR MEETINGS AND ABIDING BY ALL FEDERAL, STATE, LOCAL AND OSHA REQUIREMENTS.
2. DRAWINGS, AS PRESENTED, REPRESENT BOTH CURRENT AND PROPOSED CONDITIONS. THE ENGINEER HAS NOT PHYSICALLY LOCATED THE SITE FEATURES AS SHOWN. THE SITE FEATURES ARE A COMBINATION OF ONLINE DATA OBTAINED FROM MASSGIS PUBLICLY ACCESSSED DATA LAYER FROM "www.mass.gov/info-detail/massgis-data-layers". THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF SITE CONDITIONS PRIOR TO THE START OF WORK.
3. CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE THEMSELVES WITH FIELD CONDITIONS, ASCERTAIN THAT ALL DETAILS RELATIVE TO THE LOCATION AND INSTALLATIONS OF THE WORK ARE FEASIBLE, ANY ERRORS, OMISSIONS OR DISCREPANCIES IN THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO WORK FOR RESOLUTION.
4. THE ENGINEER MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES DO NOT EXIST WITHIN AND AROUND THE WORK AREA. THE ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR START PRIOR TO VERIFYING UNDERGROUND UTILITIES LOCATIONS AT THE SITE.
5. THE WORK SHALL BE PERFORMED IN SUCH A MANNER THAT UNDERGROUND/OVERHEAD UTILITIES OR STRUCTURES ARE NOT DAMAGED BY THE CONTRACTOR'S ACTIVITIES. THE CONTRACTOR SHALL IMMEDIATELY REPAIR EXISTING UTILITIES OR STRUCTURES DAMAGED BY CONTRACTOR DURING WORK AT NO COST TO THE OWNER OR ENGINEER.
6. THE CONTRACTOR SHALL COMPLY WITH THE CONDITIONS OF ALL ENVIRONMENTAL PERMITS ISSUED FOR THIS PROJECT.
7. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION RELATED ACTIVITIES WITH THE DCR.
8. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL BENCHMARKS, HORIZONTAL AND VERTICAL DATUM, AND LOCATIONS OF UTILITIES, AND OTHER EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION ACTIVITIES.
9. LOCATION OF ALL EXISTING UTILITIES AND SUBSURFACE STRUCTURES ARE CONSIDERED APPROXIMATE AS TO BOTH SIZE AND LOCATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE VARIOUS AVAILABLE RECORDS AND UTILITY COMPANIES AS TO THE LOCATION OF ALL SUBSURFACE STRUCTURES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION, SIZE & ELEVATION OF ALL UTILITIES WITHIN THE AREA OF PROPOSED WORK AND TO CONTACT "DIG-SAFE" AT 1-888-344-7233 AT LEAST 3 DAYS IN ADVANCE BUT NOT MORE THAN 10 DAYS PRIOR TO INITIATING CONSTRUCTION.
10. THE CONTRACTOR SHALL NOTIFY THE CITY/TOWN TO MARK ALL CITY/TOWN-OWNED WATER, SEWER, AND DRAINAGE UTILITIES PRIOR TO PERFORMING ANY INTRUSIVE ACTIVITIES.
11. THE CONTRACTOR SHALL VERIFY, BY TEST PIT/POST HOING, THE LOCATIONS OF EXISTING UTILITIES. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES, PIPING, AND APPURTENANCES BE ORDERED.
12. IF THE CONTRACTOR DAMAGES UTILITY SERVICES, HE SHALL IMMEDIATELY NOTIFY THE RESPECTIVE UTILITY COMPANY/ENGINEER/DCR AND SHALL IMMEDIATELY REPLACE OR REPAIR, UNLESS INDICATED OTHERWISE BY THE RESPECTIVE UTILITY OWNER.
13. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF ANY TEMPORARY UTILITIES REQUIRED TO FACILITATE CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO: ELECTRICITY, SANITARY FACILITIES, WATER, COMMUNICATIONS, INTERNET, BYPASS PUMPING, ETC.
14. THE CONTRACTOR SHALL PROVIDE ROADSIDE TREE PROTECTION OR INDIVIDUAL TREE PROTECTION ALONG THE LIMITS OF WORK TO PROTECT EXISTING STANDS OF QUALITY VEGETATION FROM CONSTRUCTION ACTIVITIES AND FROM EQUIPMENT AND MATERIALS BEING STORED ADJACENT TO TREE TRUNKS. DCR SHALL REVIEW TREE PROTECTION AND FENCING PRIOR TO START OF ANY MOBILIZATION OR CONSTRUCTION ACTIVITIES.
15. THERE SHALL BE NO TAKING OF TREE OR SHRUBBERY UNLESS EXPRESSLY WRITTEN APPROVAL BY DCR. IT IS DCR'S INTENT TO PRESERVE VEGETATION AND TREES TO THE MAXIMUM EXTENT POSSIBLE.
16. WORK ACTIVITIES SHALL BE CONDUCTED BETWEEN 7:00 AM AND 5:00 PM MONDAY THROUGH FRIDAY UNLESS OTHERWISE AUTHORIZED BY DCR.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING THE WORK AREA BOTH DURING AND AFTER THE HOURS OF CONSTRUCTION AND UNTIL THE SITE IS RESTORED. SECURITY MEASURES MAY INCLUDE TEMPORARY CONSTRUCTION FENCING, SIGNS AND, IF NECESSARY, BARRICADES TO LIMIT SITE ACCESS. ADDITIONAL MEASURES MAY BE INSTALLED AT THE DIRECTION OF DCR AND/OR ENGINEER IN ORDER TO ENSURE A SAFE WORKING ENVIRONMENT.
18. ALL EXISTING TOPOGRAPHY WITHIN THE CONSTRUCTION LIMITS SHALL BE RETAINED UNLESS OTHERWISE INDICATED ON DRAWINGS OR DIRECTED BY THE ENGINEER.
19. NO EXISTING PUBLIC UTILITY STRUCTURES SHALL BE ABANDONED AND/OR DISMANTLED WITHOUT AUTHORIZATION FROM THE UTILITY OWNER AND THE ENGINEER.
20. DAMAGE OF PROPERTY BEYOND THE LIMITS OF WORK CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE, SUBJECT TO THE APPROVAL OF THE ENGINEER AND ACCEPTANCE OF THE PROPERTY OWNER.
21. THE LOCATIONS OF PROPOSED PIPELINES, STRUCTURES AND UTILITY RELOCATIONS MAY BE MODIFIED TO SUIT FIELD CONDITIONS AT THE DISCRETION OF THE ENGINEER. OFFSETS TO DRAINAGE STRUCTURES ARE TO THE CENTER OF THE FRAME OR GRATE. INVERT ELEVATIONS MAY BE SUBJECT TO FIELD ADJUSTMENTS AS DIRECTED BY THE ENGINEER.
22. SAFETY CONTROLS FOR CONSTRUCTION OPERATIONS SHALL BE IN ACCORDANCE WITH MASSDOT REQUIREMENTS, THE 2009 MUTCD AS AMENDED.
23. ALL EXISTING DRAINAGE STRUCTURES AND PIPE TO REMAIN IN PLACE SHALL BE CLEANED AND SEDIMENTS DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
24. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE RESEEDD PRIOR TO THE END OF THE PROJECT.
25. IF DURING THE WORK, THE PRESENCE OF POTENTIALLY HAZARDOUS MATERIALS OR CONDITIONS IS EVIDENT, WORK IN THE AREA SHALL BE SUSPENDED, WITH IMMEDIATE NOTIFICATION TO DCR. THESE CONDITIONS INCLUDE, BUT ARE NOT LIMITED TO, ENCOUNTERING BURIED CONTAINERS, DRUMS, OR TANKS. THE AREA WILL BE SECURED TO PREVENT THE EXISTENCE OF A HEALTH RISK OR RELEASE INTO THE ENVIRONMENT. THE SOURCES OF THE EVENT CAUSING THE MATERIAL TO BE CONSIDERED SUSPECT WILL BE EVALUATED BY DCR. IN THE EVENT THAT BURIED CONTAINERS, DRUMS, OR TANKS ARE ENCOUNTERED OR IF A RELEASE OF OIL OR POTENTIALLY HAZARDOUS MATERIALS HAS OCCURRED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER, DCR, AND MASSDEP INCIDENT RESPONSE WITHIN THE REQUIRED REPORTING TIME PERIOD. THE REMOVAL OF BURIED TANKS, CONTAINERS, OR DRUMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 520 CMR 9.00 TANKS AND CONTAINERS.
26. FUEL, OIL, PAINT OR ANY OTHER HAZARDOUS MATERIALS SHALL BE STORED IN A SECONDARY CONTAINMENT AREA. CONTRACTOR SHALL SECURE, IN A LOCKED AREA, SAID MATERIALS DURING NON-WORK HOURS. CONTRACTOR SHALL PROVIDE MATERIAL SDS TO ENGINEER PRIOR TO MOBILIZING. CONTRACTOR SHALL ABIDE BY LOCAL, STATE, AND FEDERAL REGULATIONS FOR STORAGE OF MATERIALS AND ACQUIRE PERMITS AND APPROVALS FOR STORAGE OF MATERIALS.
27. A SUPPLY OF ABSORBENT SPILL RESPONSE MATERIAL SUCH AS BOOMS OR BLANKETS SHALL BE MADE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES TO CLEAN UP POTENTIAL SPILLS OF HAZARDOUS MATERIALS SUCH AS GASOLINE AND OIL.
28. SPILLS OF HAZARDOUS MATERIALS SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER, OWNER AND MA DEP:

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (MA DEP)
OIL AND CHEMICAL SPILLS UNIT
1-978-544-3314 OR 911 (LOCAL FIRE DEPARTMENT)
THEN
1-888-304-1133 (MA DEP)
DIG SAFE
1-888-344-7233 OR 811

30. THE CONTRACTOR IS RESPONSIBLE FOR SECURING SITE AT THE END OF EACH CONSTRUCTION DAY.

31. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ON-SITE MANAGEMENT AND THE OFF-SITE TRANSPORT AND DISPOSAL OF ALL WASTES GENERATED DURING THE PROJECT IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

32. THE CONTRACTOR SHALL COORDINATE ANY REQUIRED UTILITY WORK WITH THE RESPECTIVE UTILITY OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION AND COSTS ASSOCIATED WITH THE CUSTOMER OWNED SERVICES AND FOR ALL UTILITY WORK MADE FOR THE CONTRACTOR'S CONVENIENCE, INCLUDING TEMPORARY UTILITY RELOCATION(S) AND/OR RECONNECTION(S).

33. REMOVAL AND REPLACEMENT OF GUARDRAIL SECTIONS AND POSTS AND BOULDERS SHALL BE CONSIDERED INCIDENTAL TO WORK AND NO ADDITIONAL FUNDING WILL BE AWARDED FOR SUCH WORK.

34. ALL WORK SHALL BE IN ACCORDANCE WITH MOST CURRENT VERSION OF MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.

35. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK INCLUDED IN THE CONTRACT DOCUMENTS.

36. THE CONTRACTOR IS RESPONSIBLE FOR SECURING EXCAVATION, EXCAVATION SLOPE STABILITY AND FALL HAZARDS ASSOCIATED WITH WORK.

37. THE CONTRACTOR SHALL RECEIVE, IN WRITING FROM DCR, AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.

38. DIMENSION CALL-OUTS SHALL TAKE PRECEDENCE OVER SCALES SHOWN ON THE DRAWINGS.

39. THE CONTRACTOR SHALL MAINTAIN HAND DRAWN RED LINES, FIELD NOTES, AND PHOTOGRAPHS ("FIELD DOCUMENTATION") OF ALL IMPROVEMENTS OR VARIATIONS AS THE WORK PROGRESSES. THE CONTRACTOR'S FIELD DOCUMENTATION SHALL BE MAINTAINED ON-SITE AND SHALL BE AVAILABLE FOR REVIEW BY THE ENGINEER AT ALL TIMES.

40. THE PROJECT WORK SHALL BE CONSTRUCTED TO MEET ALL PROVISIONS OF APPLICABLE PERMITS

41. THE CONTRACTOR SHALL KEEP THE WORK AREAS IN A CLEAN AND NEAT CONDITION AND FREE OF DEBRIS AND CLUTTER FOR THE DURATION OF THE PROJECT.

PERMITS/APPROVALS

1. ALL FEES ASSOCIATED WITH APPLYING FOR AND OBTAINING PERMITS, NOT OBTAINED BY OTHERS, TO COMPLETE THE WORK WILL BE MADE AT THE EXPENSE OF THE CONTRACTOR. COMPLIANCE WITH ALL PROJECT PERMIT CONDITIONS IS THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE CONTRACTOR SHALL OBTAIN ADDITIONAL LOCAL WORK PERMITS AND APPROVALS AS REQUIRED.

TRAFFIC ROUTING

1. THE CONTRACTOR SHALL DEVELOP A TRAFFIC CONTROL PLAN FOR APPROVAL BY DCR. THE PLAN SHALL INCLUDE BUT NOT LIMITED TO TRAFFIC FLOW PATTERNS, SIGNAGE, LOCATION OF FLAGGERS/POLICE DETAIL, ESTIMATED DURATION OF ALTERED TRAFFIC PATTERN, ETC.
2. THE CONTRACTOR SHALL COORDINATE TRAFFIC FLOW FOR TRUCKING/EQUIPMENT IN SUCH A MANNER TO NOT CAUSE DAMAGE TO PAVEMENT AND AREAS ADJACENT TO PAVEMENT. ALTERNATE PEDESTRIAN TRAFFIC FLOW SHALL POSTED DURING WORK OR FLAGMAN SHALL BE PROVIDED TO DIRECT PEDESTRIAN TRAFFIC.

SOIL/MILLING MANAGEMENT

1. THE CONTRACTOR SHALL DISPOSE OF ALL WASTE MATERIAL IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS AT HIS OWN EXPENSE IF NOT OTHERWISE SPECIFIED
2. BACKFILL SHALL NOT BE PLACED OUTSIDE THE LIMITS OF WORK. STOCKPILED TOPSOIL SHALL BE COVERED BY PLASTIC SHEETING AND PROPERLY BALLASTED. PLASTIC SHALL BE PLACED IN SUCH A MANNER THAT RAIN WATER DOES NOT COLLECT OR FILTER THROUGH MATERIAL

ACRONYMS:

ACP	ASBESTOS CEMENT PIPE	R&R	REMOVE AND RESET
CMP	CORRUGATED METAL PIPE	R&S	REMOVE AND STACK
CPP	CORRUGATED PLASTIC PIPE	SMH	SEWER MANHOLE
CSP	CORRUGATED STEEL PIPE	TEMP	TEMPORARY
CONC	CONCRETE	TYP	TYPICAL
DI	DROP INLET	YB	YELLOW BIRCH
DIA	DIAMETER		
DW	DOGWOOD		
ELEV (or EL.)	ELEVATION		
EOP	DGE OF PAVEMENT		
EWT	EDGE TRAVEL WAY		
EXIST (or EX)	EXISTING		
FES	FLARED END SECTION		
GRAV	GRAVEL		
GRD	GUARD		
HDW	HEADWALL		
HL	EASTERN HEMLOCK		
INV	INVERT		
MAX	MAXIMUM		
MIN	MINIMUM		
PROP	PROPOSED		
PWW	PAVED WATER WAY		
RM	RED MAPLE		
R&D	REMOVE AND DISPOSE		
RCP	REINFORCED CONCRETE PIPE		
REM	REMOVE		
RET	RETAIN		

EXISTING FEATURES AND UTILITIES

	EXISTING CURB
	EXISTING ELECTRICAL UTILITY LINE
	EXISTING FENCE
	EXISTING GRADE 1' CONTOUR
	EXISTING GRADE 5' CONTOUR
	EXISTING STORM DRAIN
	EXISTING WATER LINE
	100' WETLAND BUFFER
	EXISTING STONE WALL
	PRIORITY HABITAT

EXISTING CONCRETE AREA

EXISTING WETLAND (DELINEATED BY AECOM, NOVEMBER 2022)

EXISTING WATERBODY

	EXISTING CATCH BASIN
	EXISTING SANITARY SEWER MANHOLE
	EXISTING SIGN
	EXISTING TREE (DW, HL, RM, YB)
	WETLAND/WATERBODY FLAG
	EXISTING ROCK
	EXISTING BUSH



PROJECT

LAUREL LAKE
DRAINAGE INFRASTRUCTURE
MAINTENANCE & REPAIRS
MASSACHUSETTS DEPARTMENT OF
CONSERVATION AND RECREATION
WARWICK, MA

CLIENT

MASSACHUSETTS DEPARTMENT
OF CONSERVATION AND RECREATION
10 PARK PLAZA, SUITE 6620
BOSTON, MA 02116

CONSULTANT

AECOM
250 Apollo Drive
Chelmsford, MA 01824
978.905.2100 tel 978.905.2101 fax
www.aecom.com

REGISTRATION



Date: 03-01-2024

RANDALL TWISS, P.E.
MA PE Lic. No. 50236

ENGINEER'S CERTIFICATION:

THE UNDERSIGNED HEREBY CERTIFIES
THIS PLAN TO BE AN APPROPRIATE
REPRESENTATION OF THE PROPOSED
SITE FEATURES. THE COMPLIANCE OF THE
IMPLEMENTATION OF CONTRACT WORK IS
THE CONTRACTOR'S SOLE RESPONSIBILITY.

REFERENCE

ISSUE/REVISION

0	03/01/2024	ISSUED FOR PERMIT
I/R	DATE	DESCRIPTION

PROJECT NUMBER

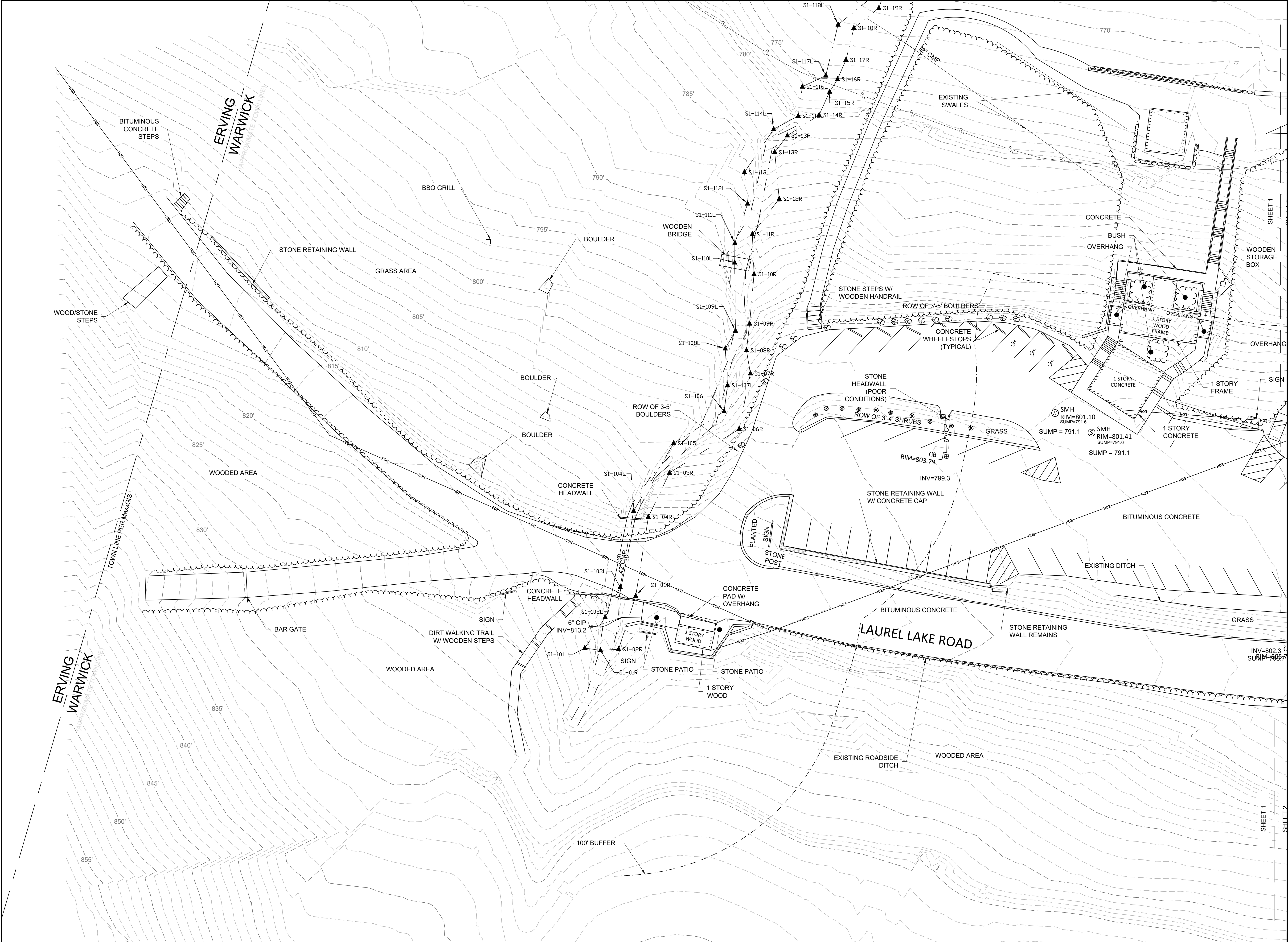
60687346

SHEET TITLE

GENERAL NOTES
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SHEET NUMBER

G-01



PROJECT
LAUREL LAKE
DRAINAGE INFRASTRUCTURE
MAINTENANCE & REPAIRS
MASSACHUSETTS DEPARTMENT OF
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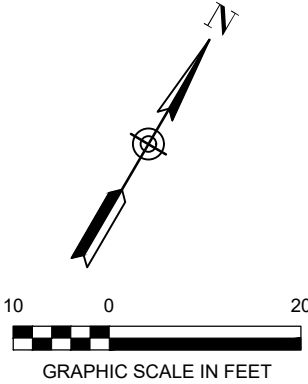


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RANDALL TWISS, P.E.
MA PE Lic. No. 50236

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SHEET TITLE
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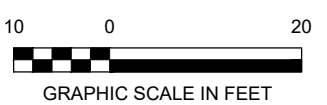
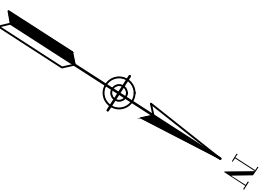


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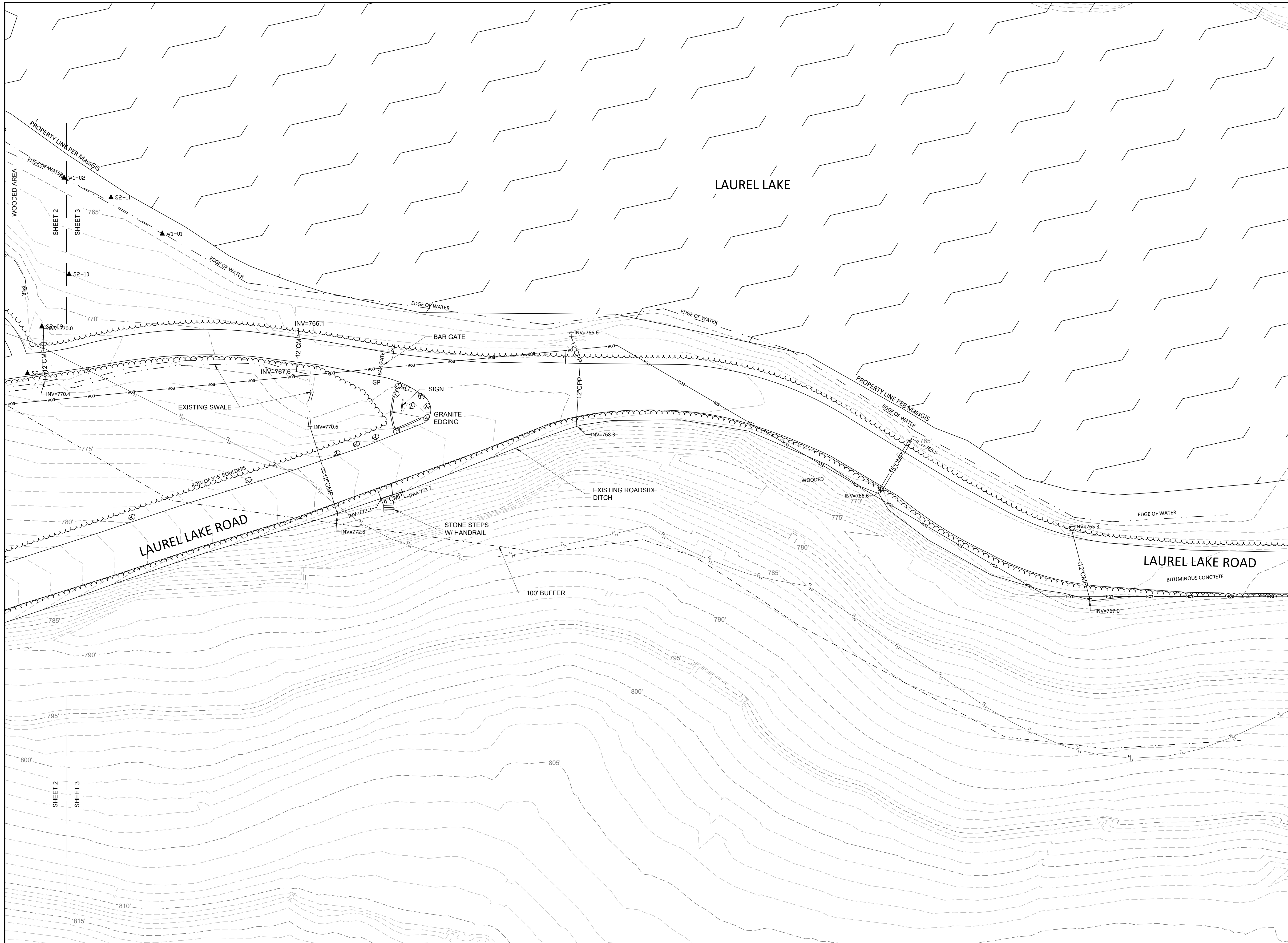


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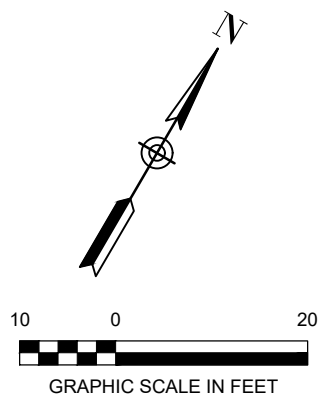
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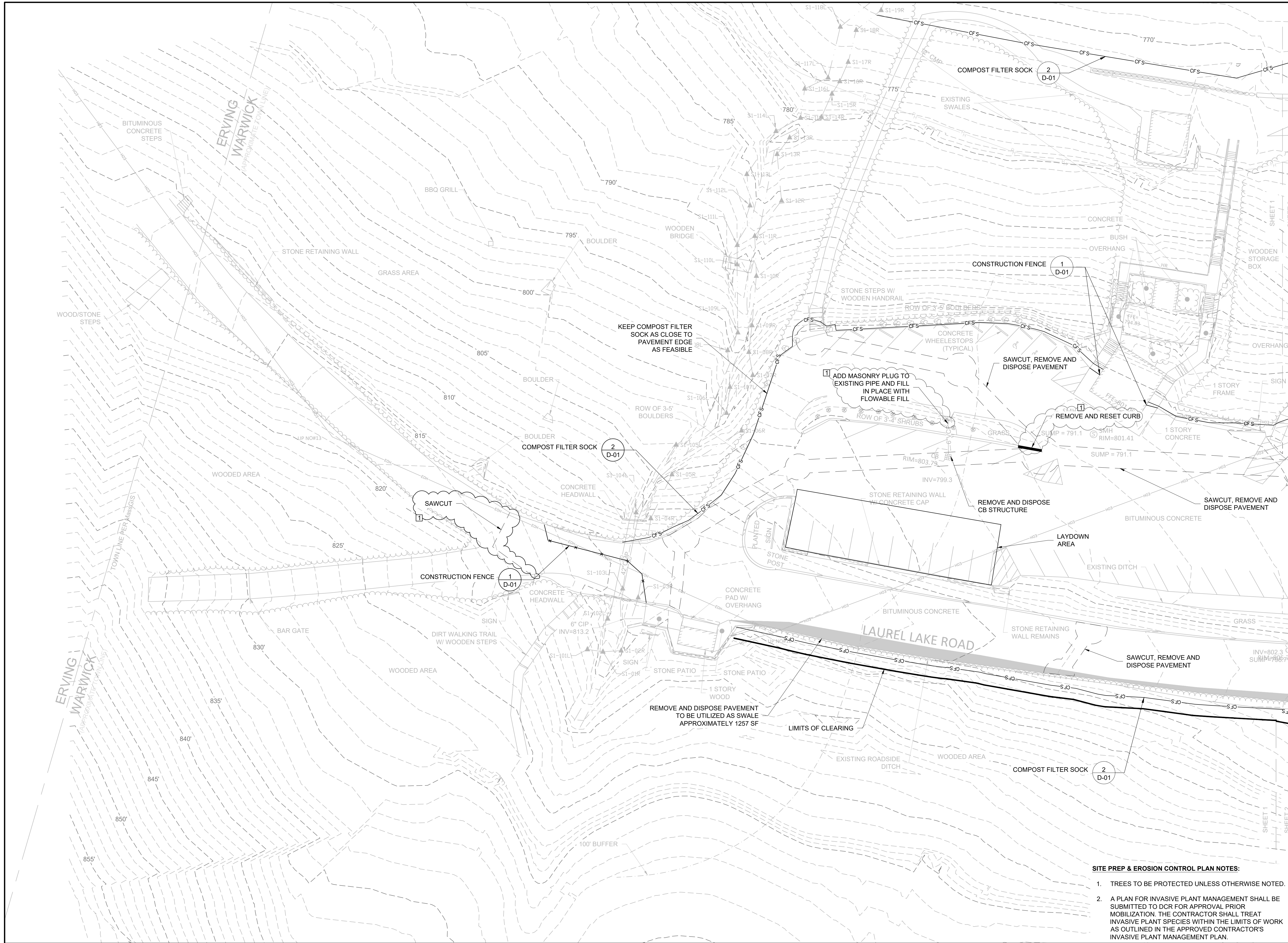
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SHEET TITLE

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EC-03



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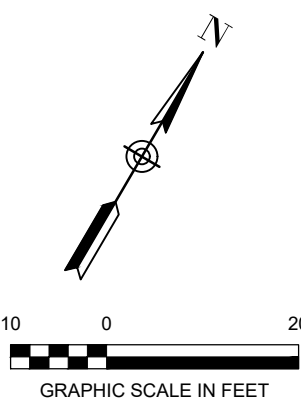
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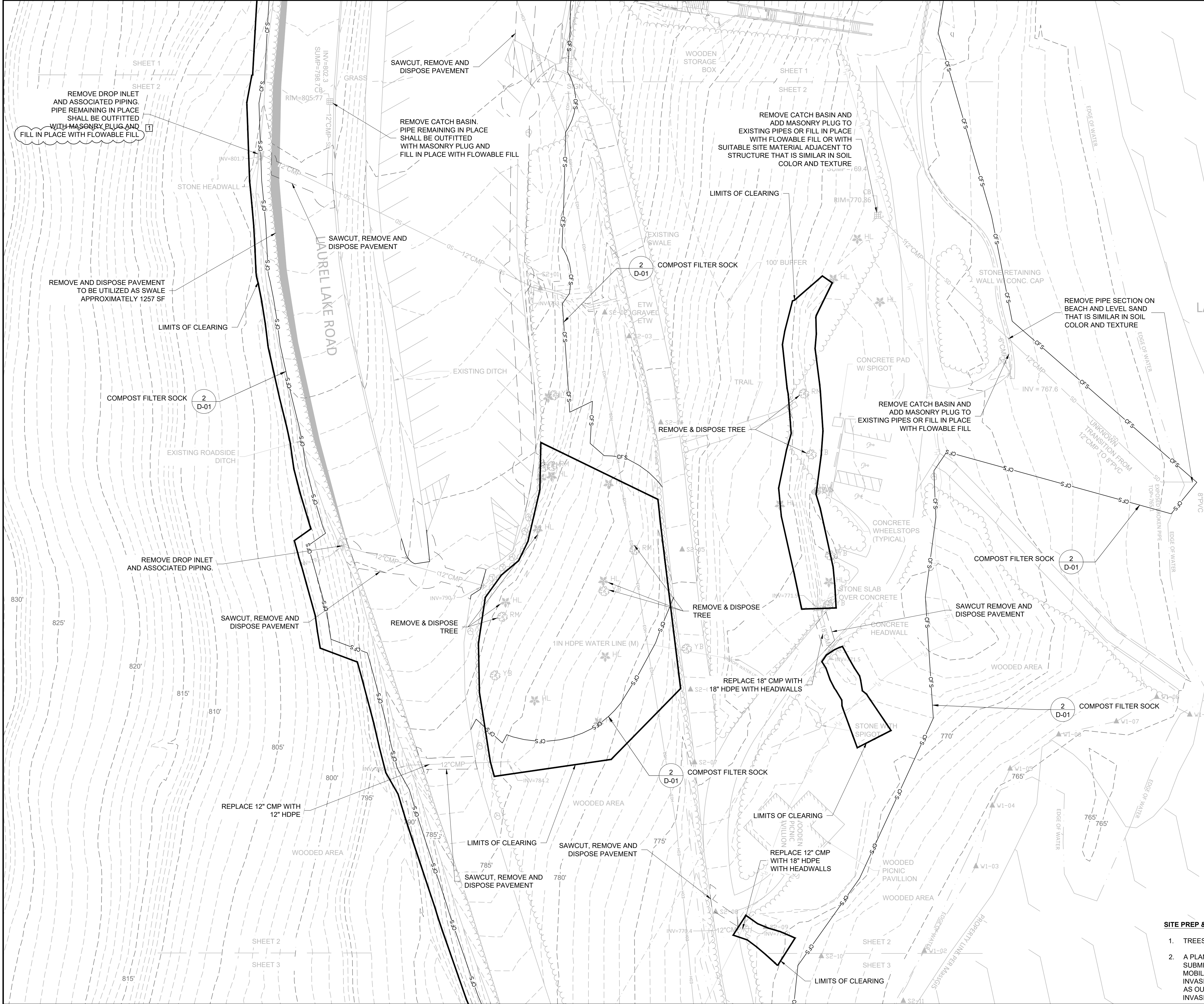
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SHEET TITLE

SITE PREP & EROSION CONTROL PLAN
SHEET 1 OF 3
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SHEET NUMBER

SP-01



SITE PREP & EROSION CONTROL PLAN NOTES:

- TREES TO BE PROTECTED UNLESS OTHERWISE NOTED.
- A PLAN FOR INVASIVE PLANT MANAGEMENT SHALL BE SUBMITTED TO DCR FOR APPROVAL PRIOR MOBILIZATION. THE CONTRACTOR SHALL TREAT INVASIVE PLANT SPECIES WITHIN THE LIMITS OF WORK AS OUTLINED IN THE APPROVED CONTRACTOR'S INVASIVE PLANT MANAGEMENT PLAN.



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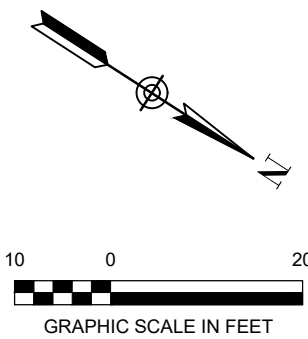
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SHEET TITLE

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SHEET 2 OF 3
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SP-02

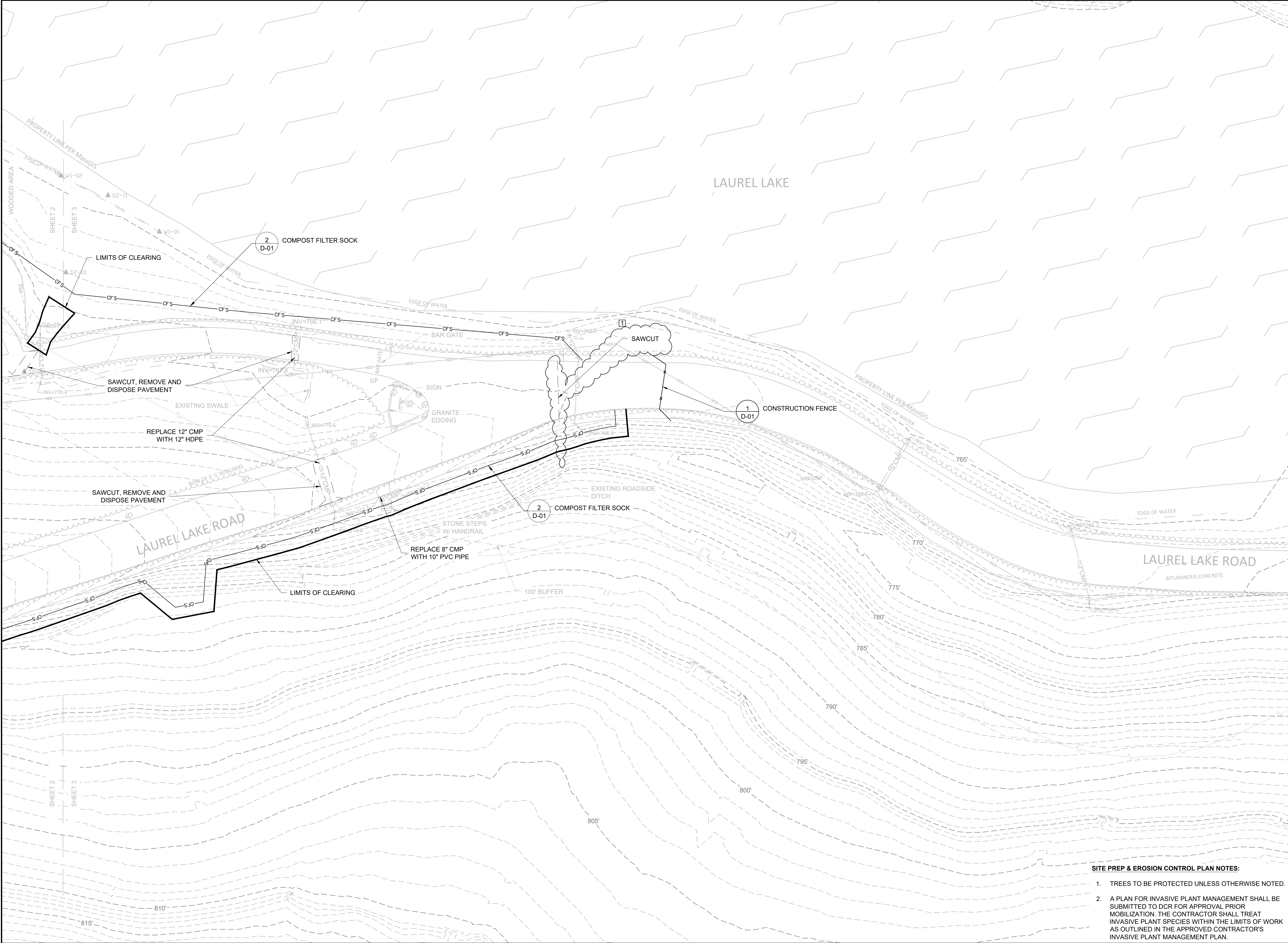
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Project Management Initials:



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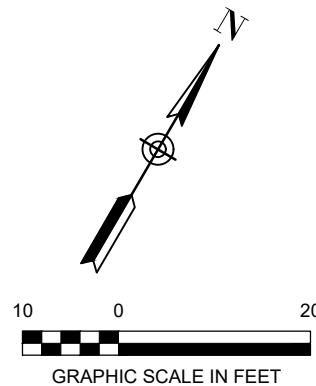
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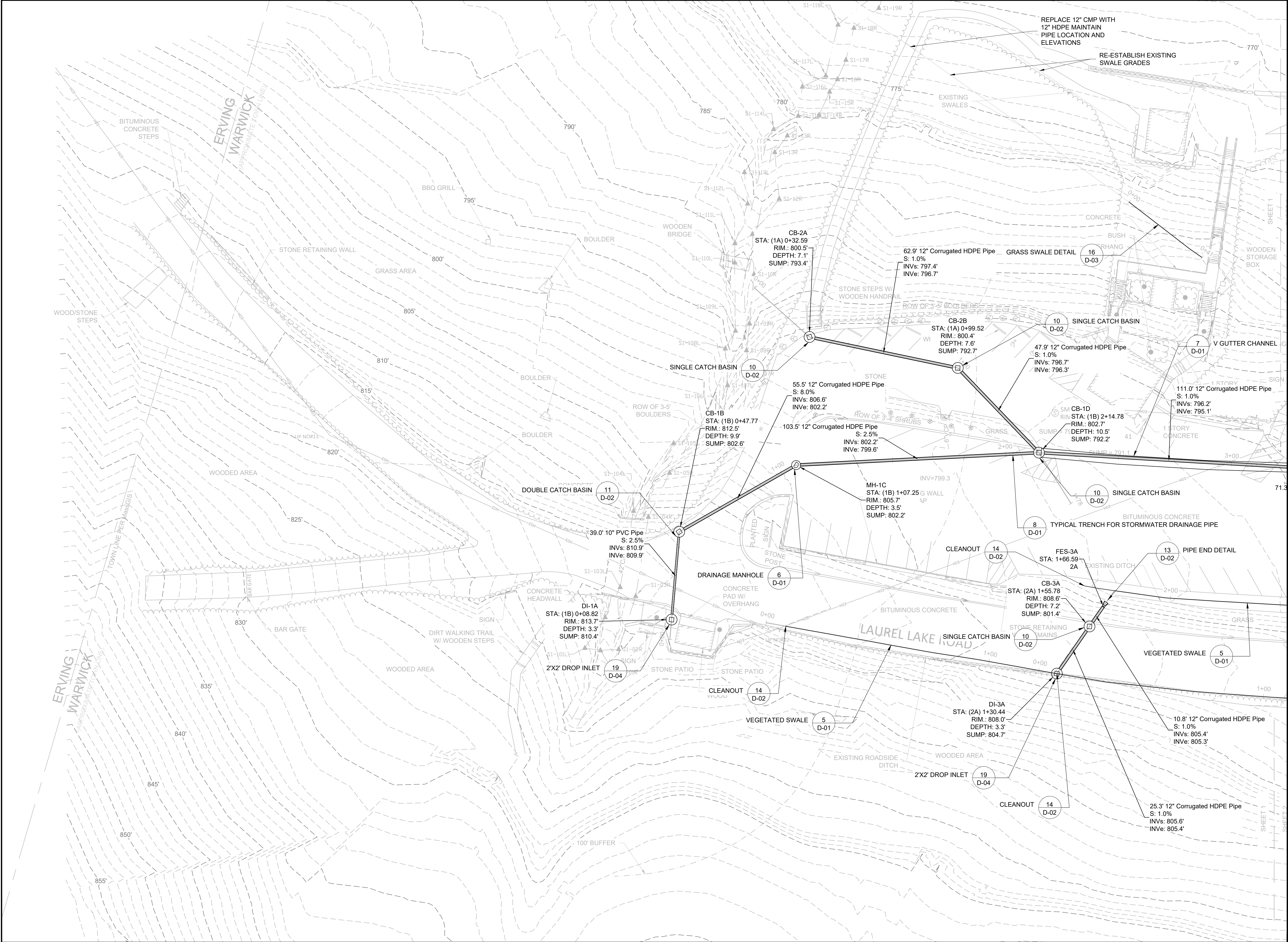
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SITE PREP & EROSION CONTROL PLAN
SHEET 3 OF 3
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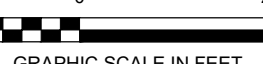
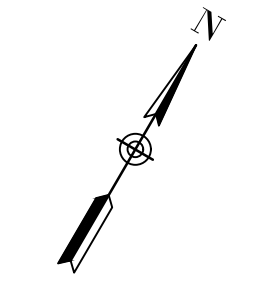
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SHEET 1 OF 3
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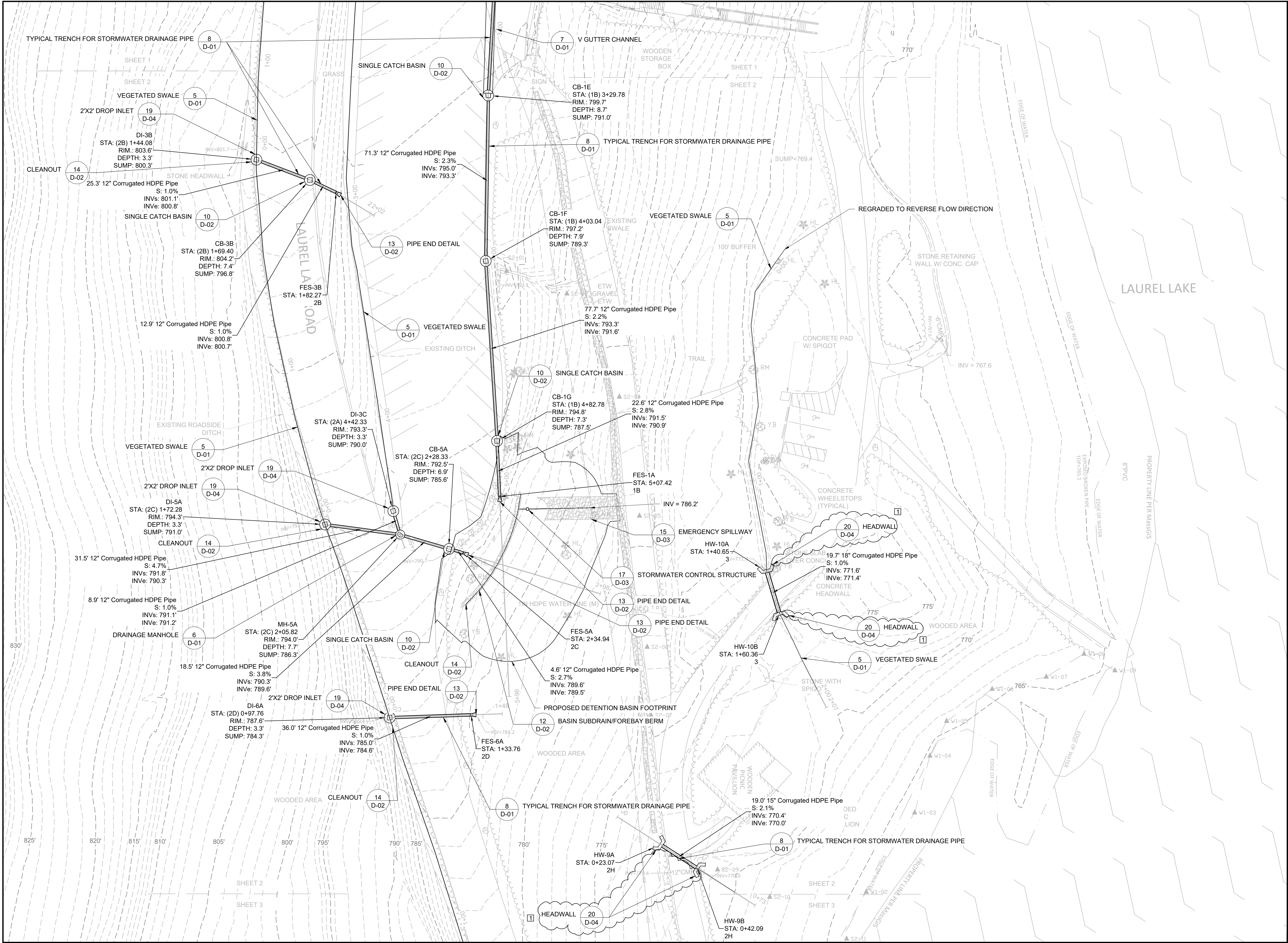
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Approved:

Checked:

Designer:

Project Management Initials:



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LAUREL LAKE
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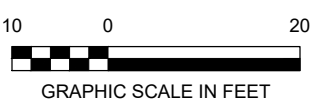
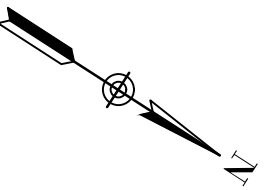
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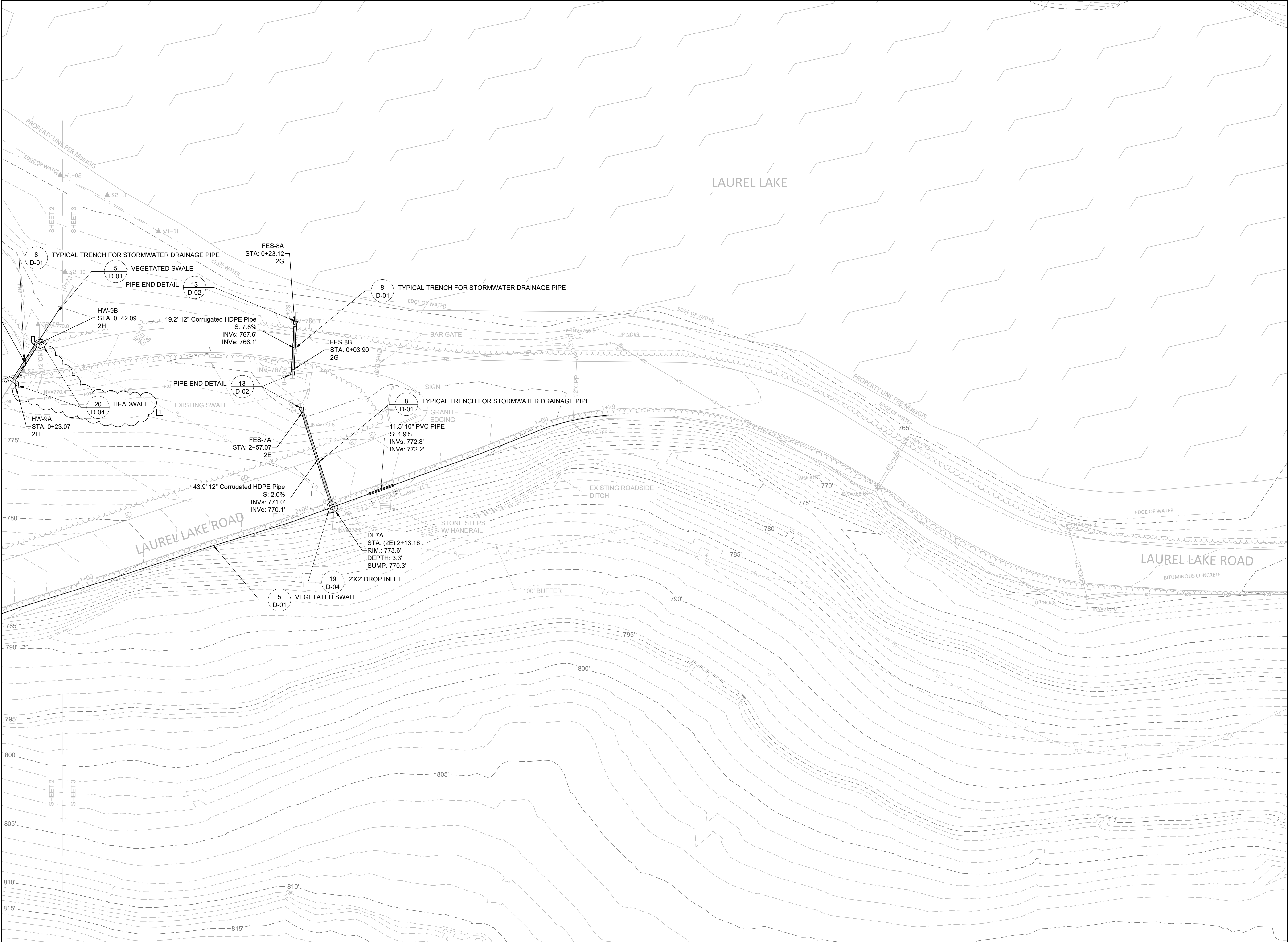
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DRAINAGE PLAN
SHEET 2 OF 3
PAGE 10 OF 32

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DP-02

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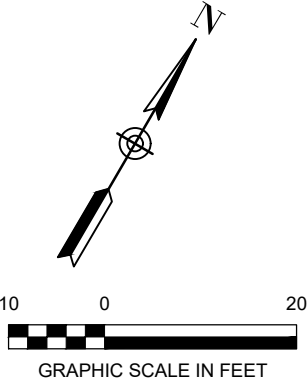


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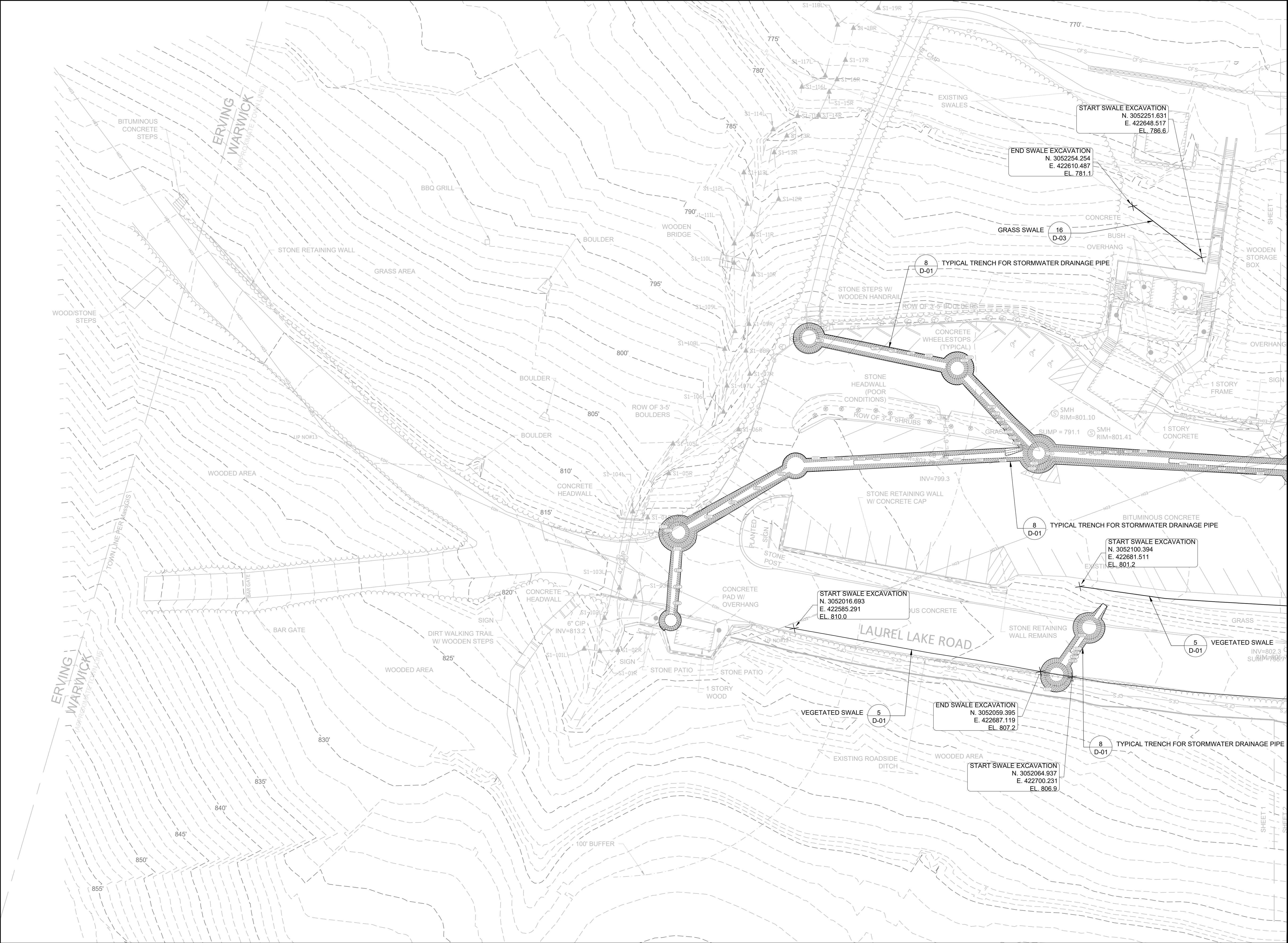
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DRAINAGE PLAN
SHEET 3 OF 3
PAGE 11 OF 32

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DP-03

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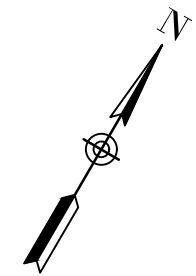


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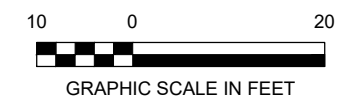
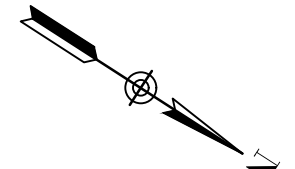


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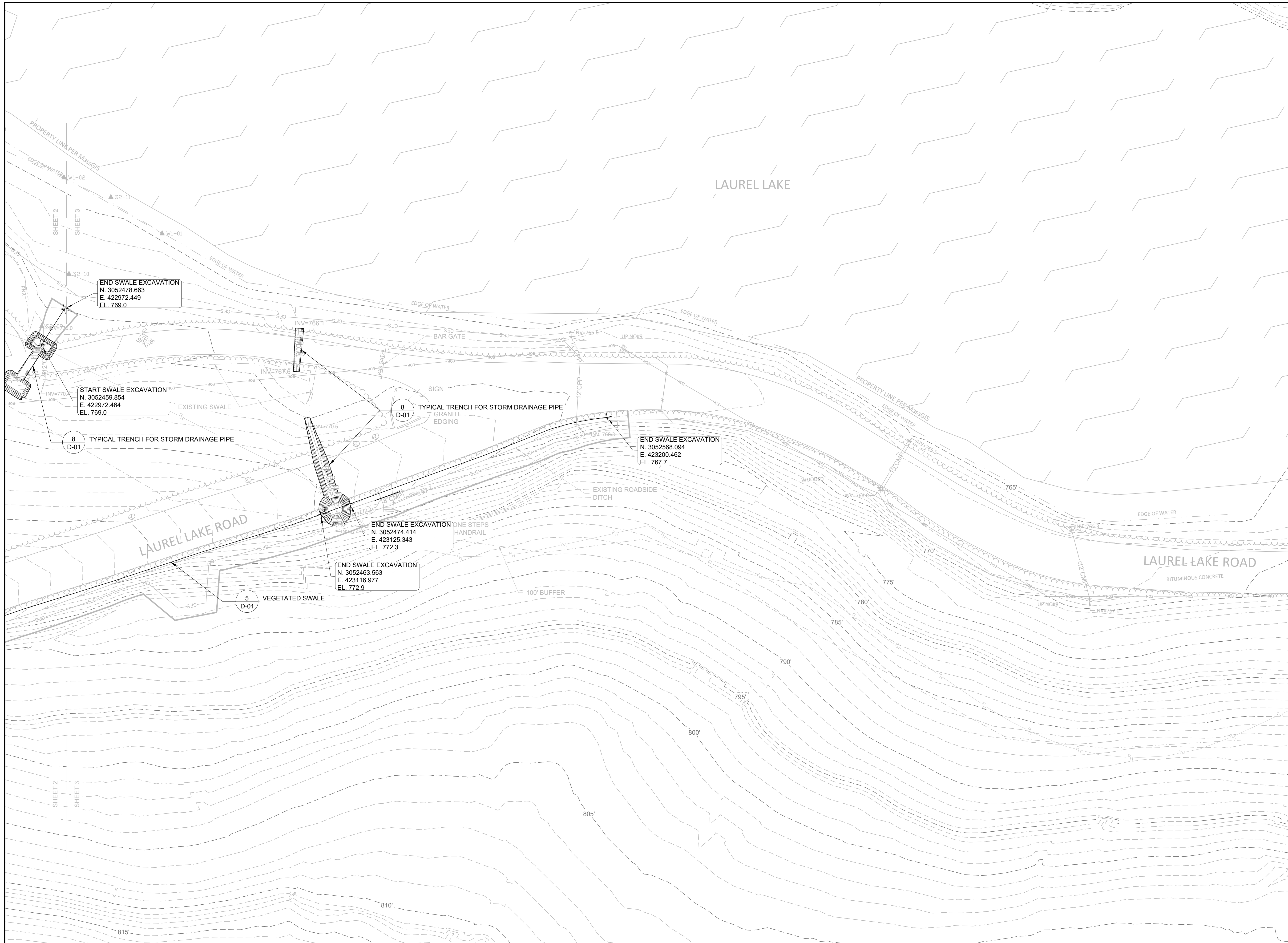


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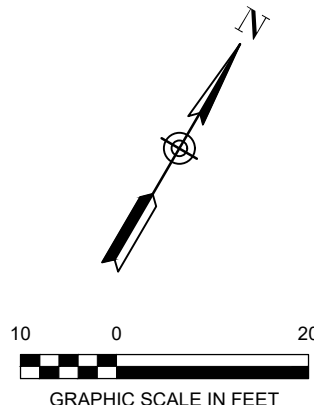
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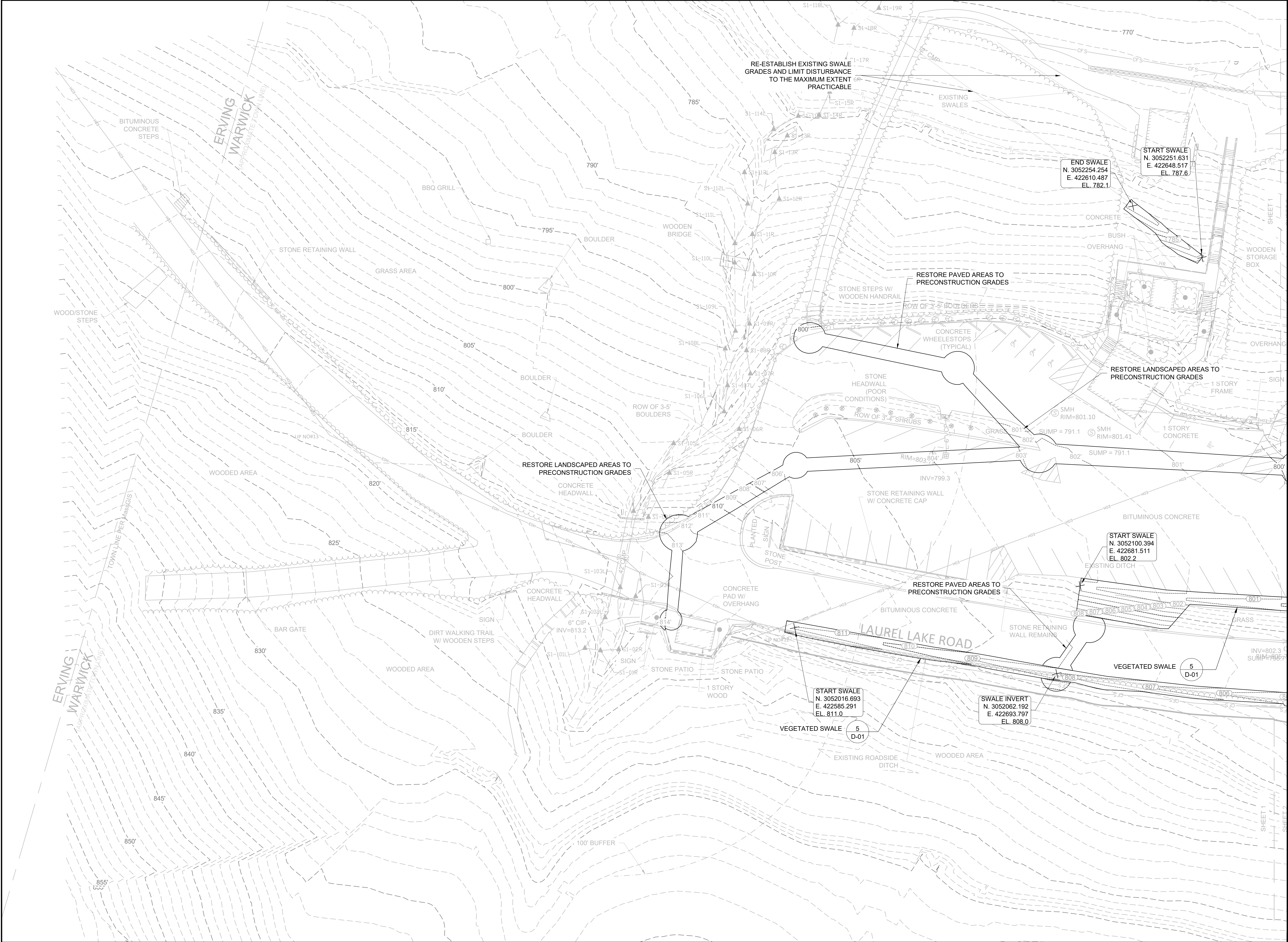
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SHEET 3 OF 3
PAGE 14 OF 32

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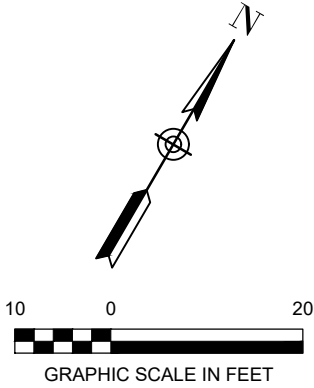


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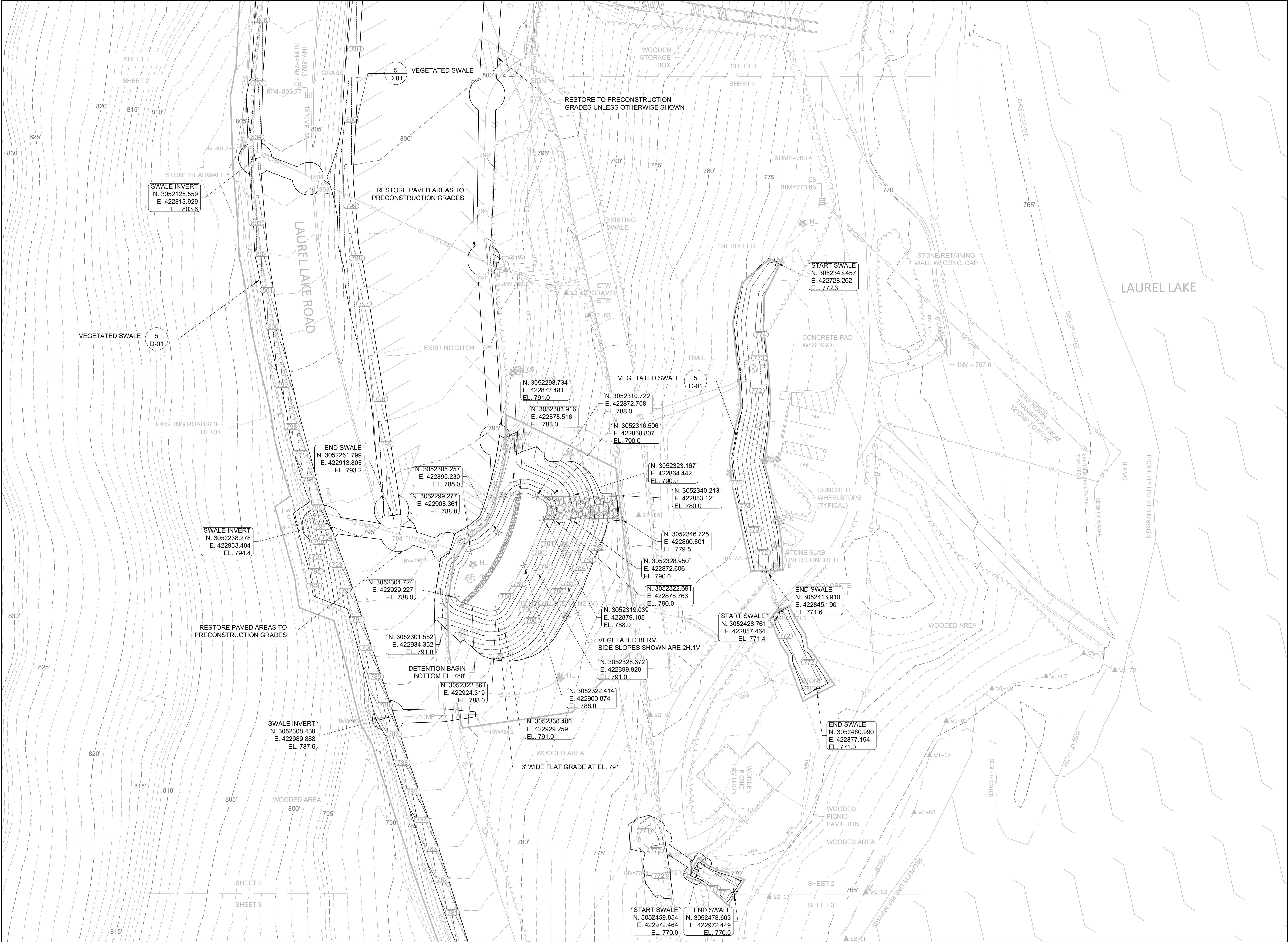


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SHEET TITLE
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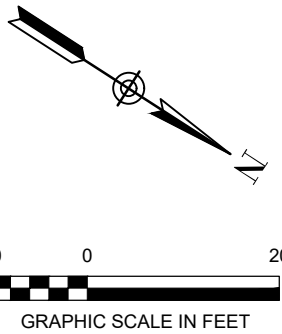
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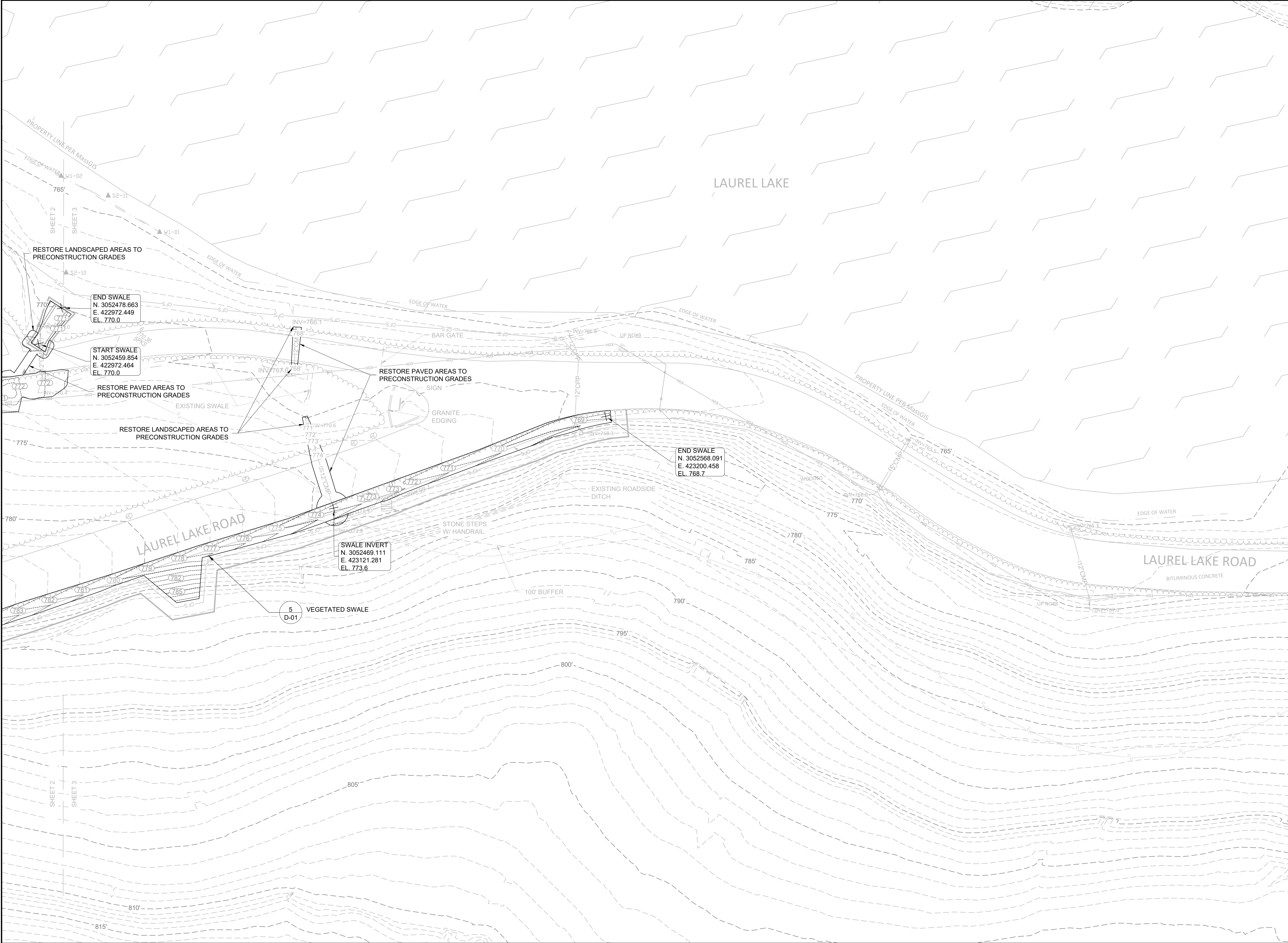
SHEET TITLE

FINAL GRADING PLAN
SHEET 2 OF 3
PAGE 16 OF 32

SHEET NUMBER

FG-02

ANSI D 22" x 34" Approved: Checked: Designer: Project Management Initials:



PROJECT

LAUREL LAKE
DRAINAGE INFRASTRUCTURE
MAINTENANCE & REPAIRS
MASSACHUSETTS DEPARTMENT OF
CONSERVATION AND RECREATION
WARWICK, MA

CLIENT

MASSACHUSETTS DEPARTMENT
OF CONSERVATION AND RECREATION
10 PARK PLAZA, SUITE 6620
BOSTON, MA 02116

CONSULTANT

AECOM
250 Apollo Drive
Chelmsford, MA 01824
978.905.2100 tel 978.905.2101 fax
www.aecom.com

REGISTRATION



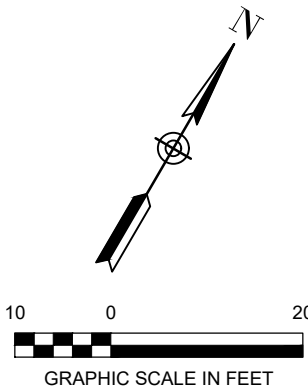
Date: 03-01-2024

RANDALL TWISS, P.E.
MA PE Lic. No. 50236

ENGINEER'S CERTIFICATION:

THE UNDERSIGNED HEREBY CERTIFIES
THIS PLAN TO BE AN APPROPRIATE
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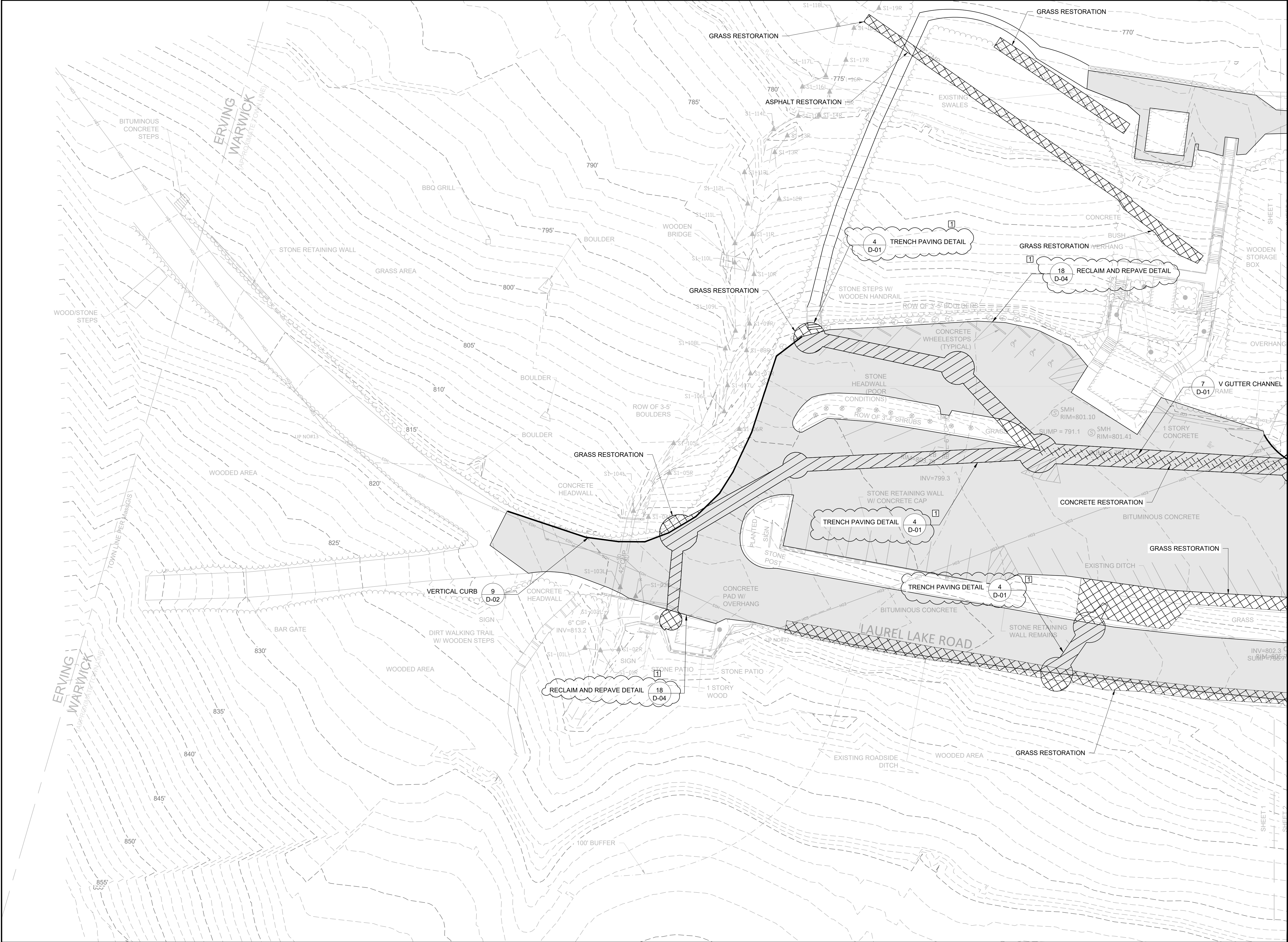
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FINAL GRADING PLAN
SHEET 3 OF 3
PAGE 17 OF 32

SHEET NUMBER

FG-03

ANSI D 22" x 34" Approved: Checked: Designer: Project Management Initials:



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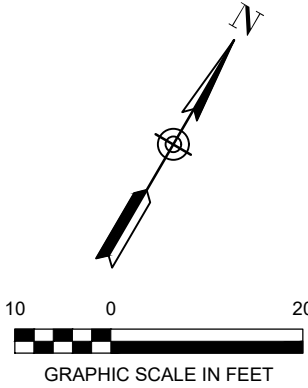


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60687346

SHEET TITLE
RESTORATION PLAN
SHEET 1 OF 3
PAGE 18 OF 32

SHEET NUMBER
R-01

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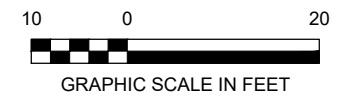
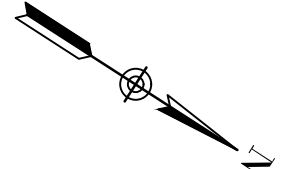


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SHEET TITLE
RESTORATION PLAN
SHEET 2 OF 3
PAGE 19 OF 32

SHEET NUMBER
R-02

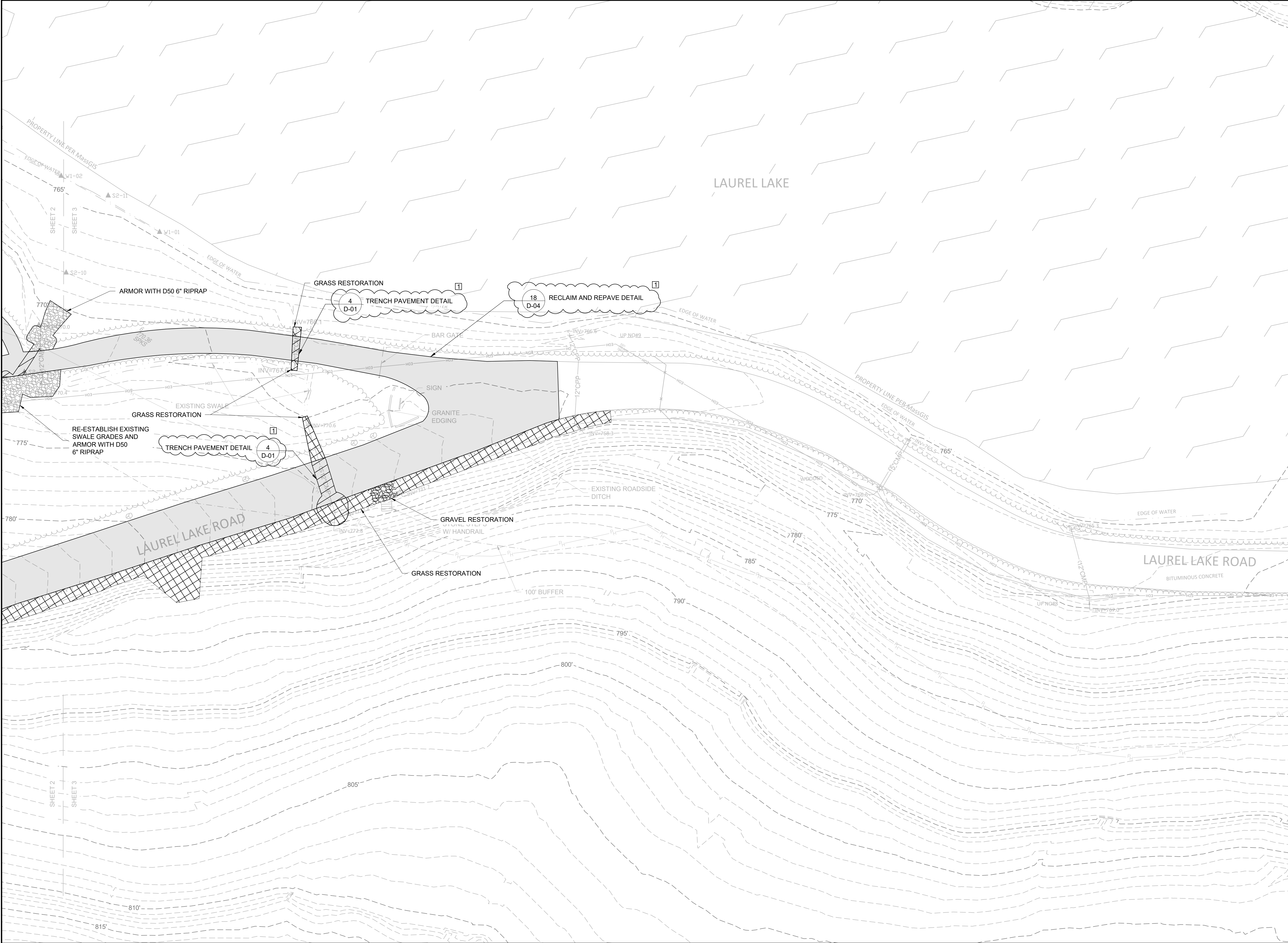
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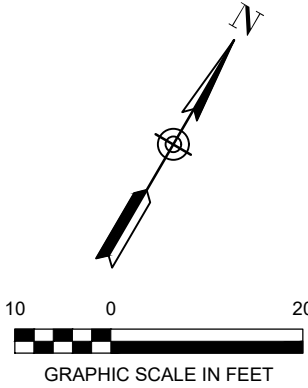


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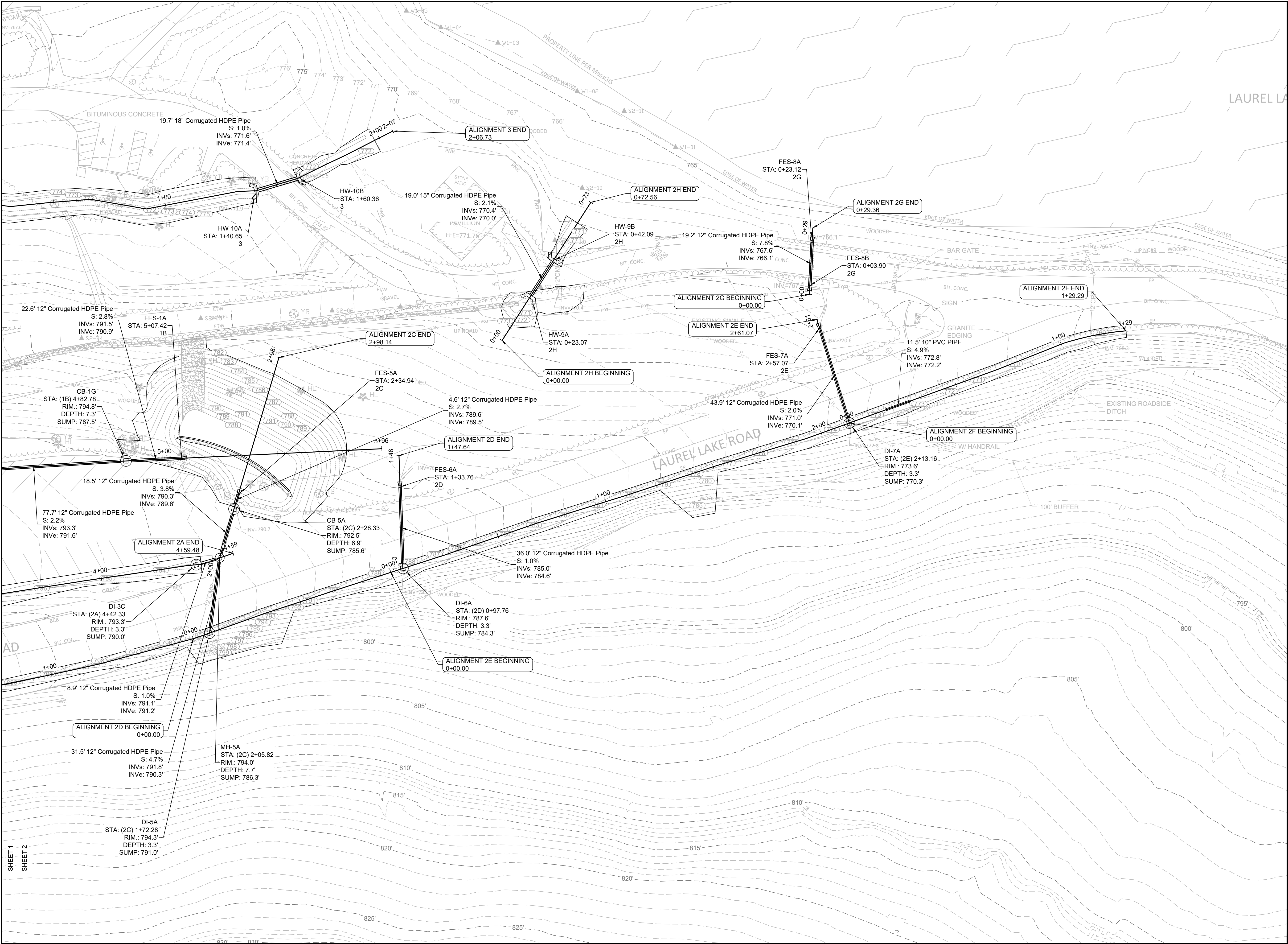
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RESTORATION PLAN
SHEET 3 OF 3
PAGE 20 OF 32

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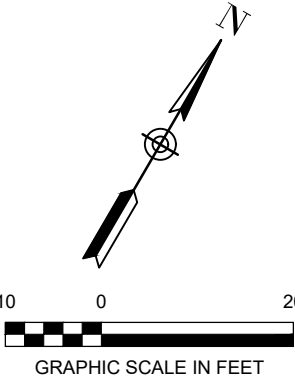


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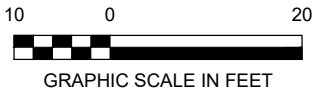
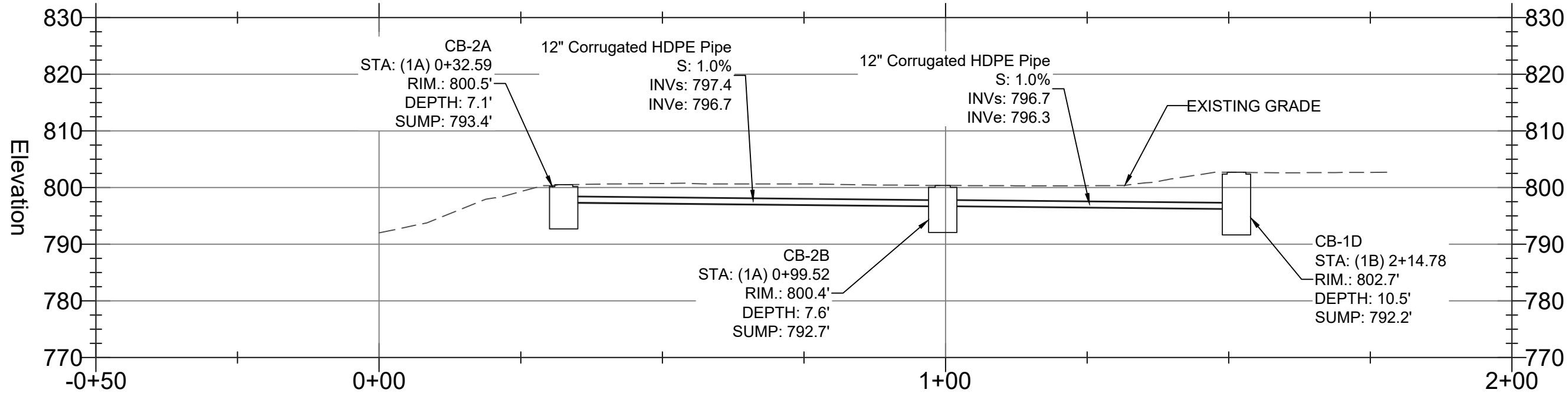
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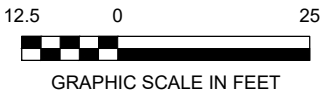
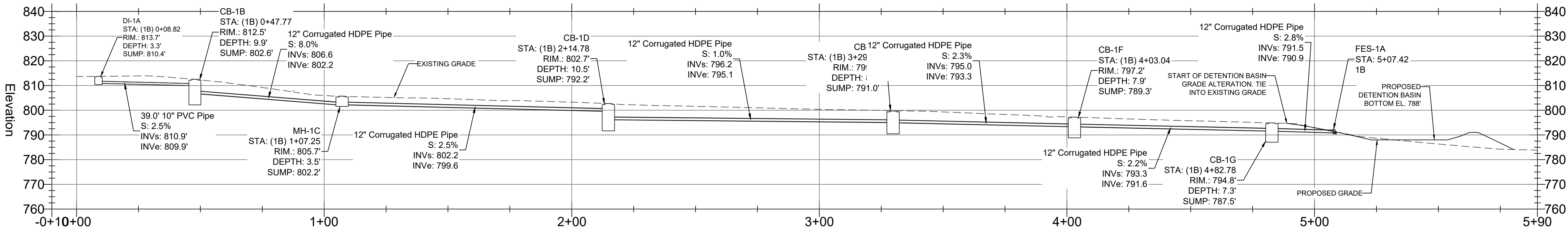
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CROSS SECTIONS PLAN
SHEET 2 OF 8
PAGE 22 OF 32

SHEET NUMBER
XS-02

ALIGNMENT 1A (-0+50.00 TO 2+00.00)



ALIGNMENT 1B (-0+10.00 TO 5+90.00)



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SHEET 3 OF 8
PAGE 23 OF 32

SHEET NUMBER

XS-03

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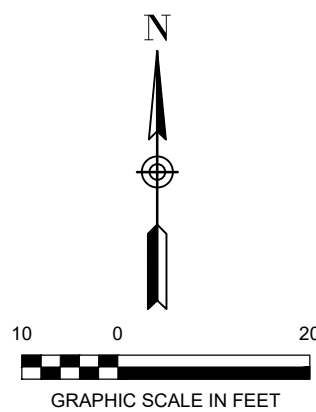
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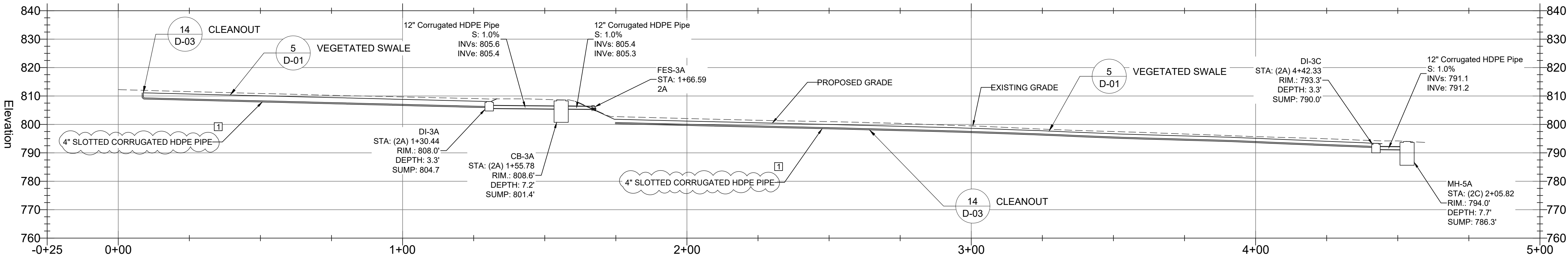
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CROSS SECTIONS PLAN
SHEET 4 OF 8
PAGE 24 OF 32

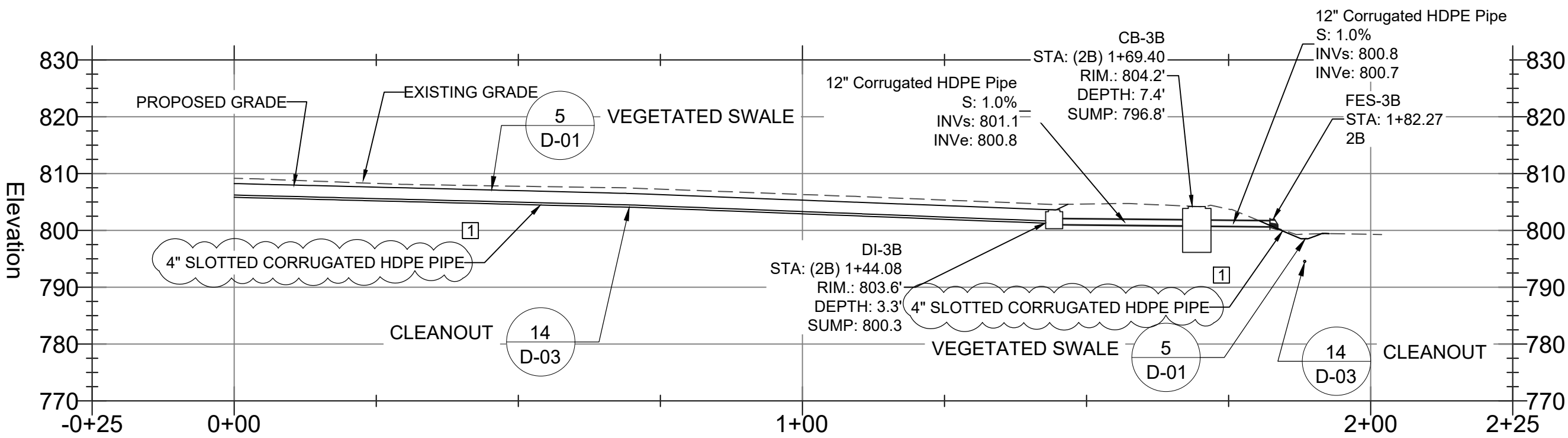
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XS-04

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ALIGNMENT 2B (-0+25.00 TO 2+25.00)





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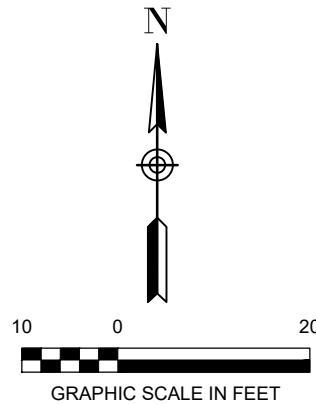
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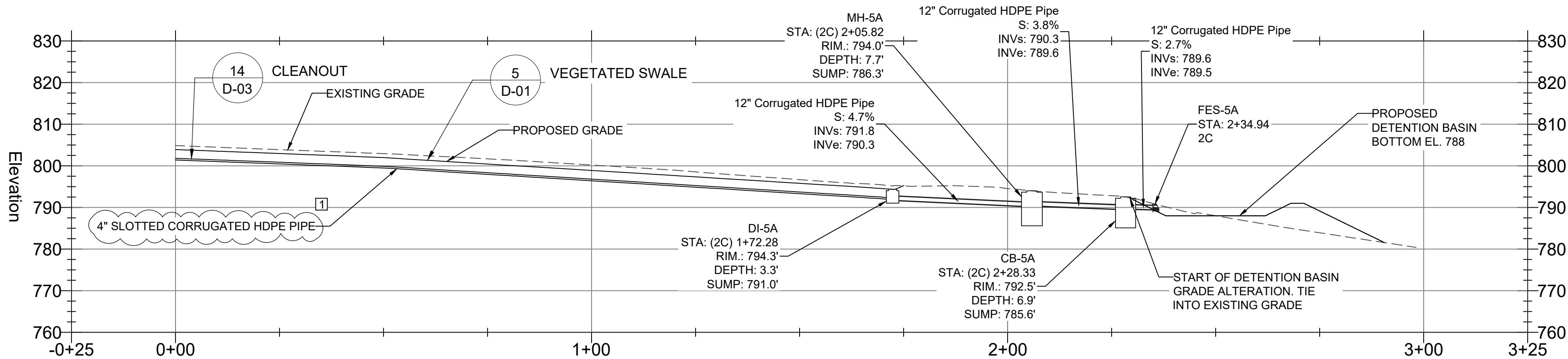
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CROSS SECTIONS PLAN
SHEET 5 OF 8
PAGE 25 OF 32

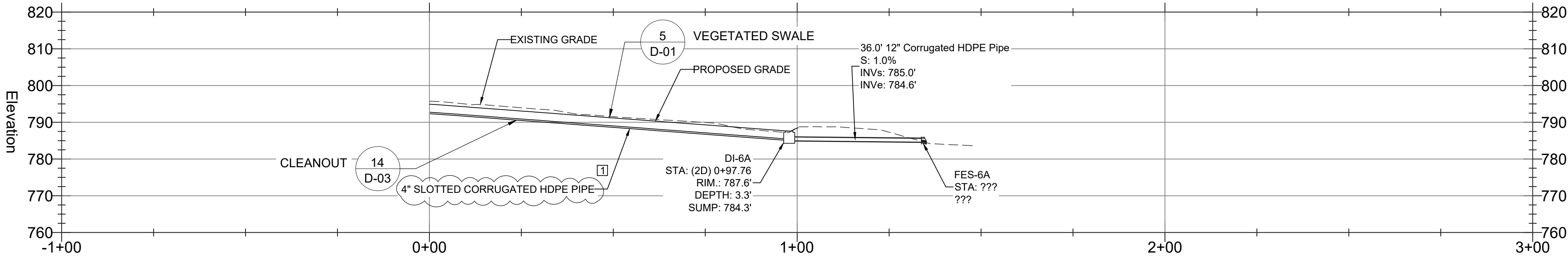
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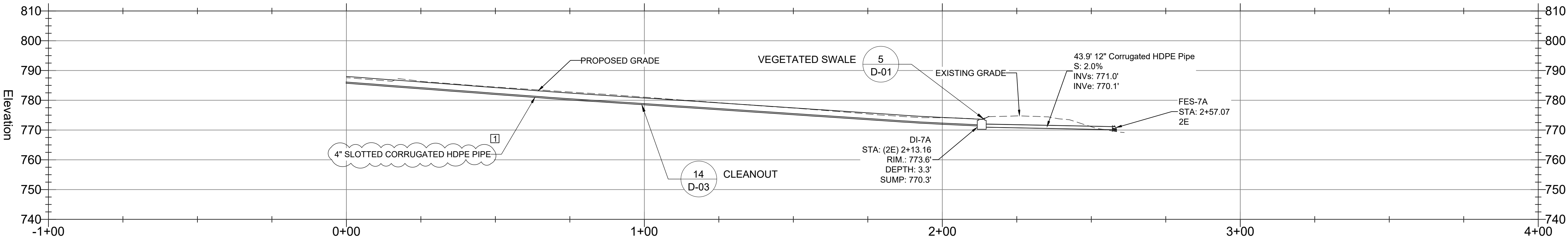


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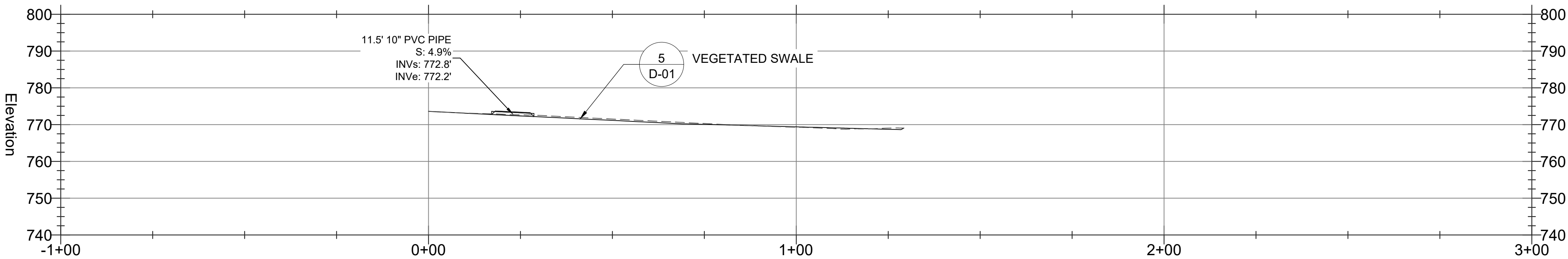


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Checked:
Designer:
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ALIGNMENT 2E (-1+00.00 TO 4+00.00)



ALIGNMENT 2F (-1+00.00 TO 3+00.00)



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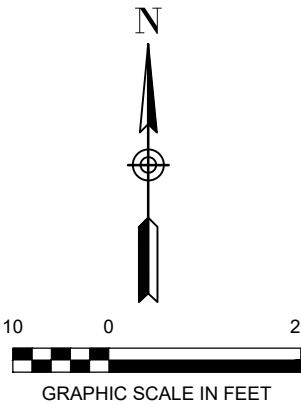
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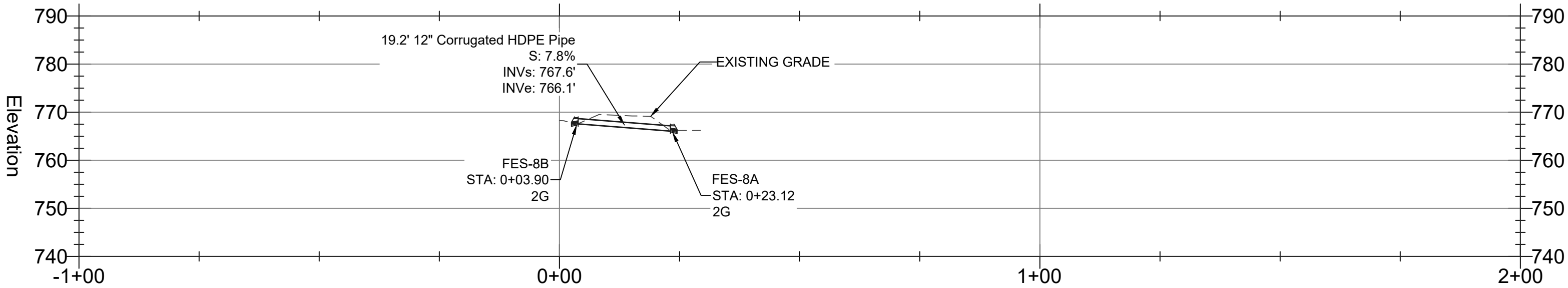
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CROSS SECTIONS PLAN
SHEET 6 OF 8
PAGE 26 OF 32

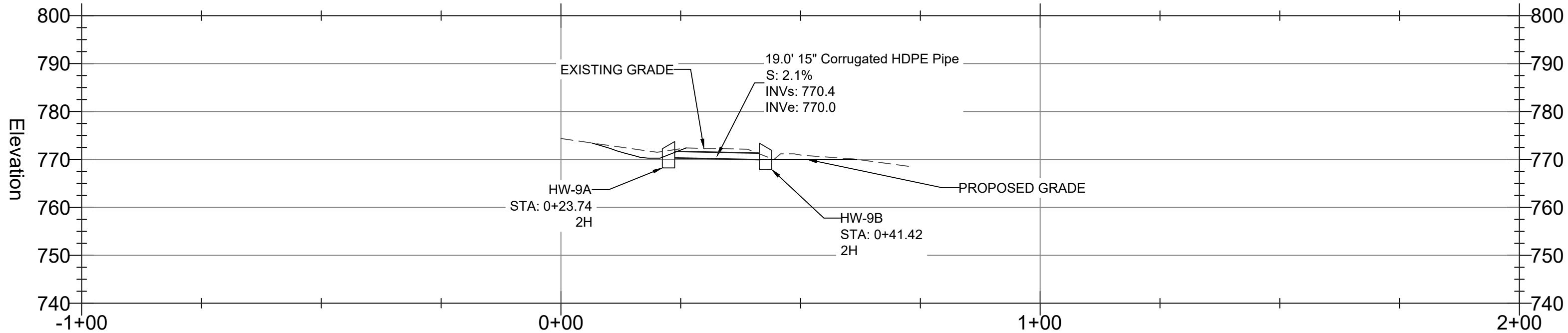
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ALIGNMENT 2G (-1+00.00 TO 2+00.00)



ALIGNMENT 2H (-1+00.00 TO 2+00.00)



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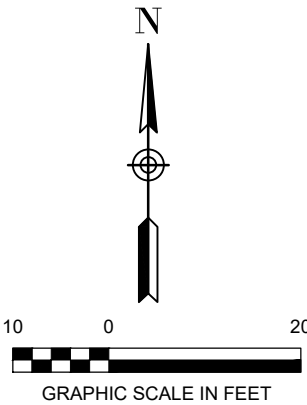
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CROSS SECTIONS PLAN
SHEET 7 OF 8
PAGE 27 OF 32

SHEET NUMBER

XS-07



PROJECT

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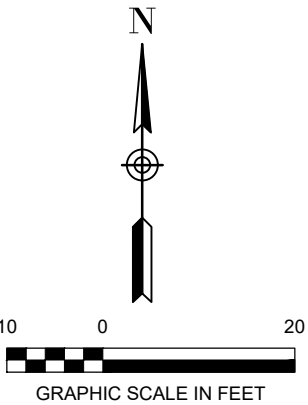
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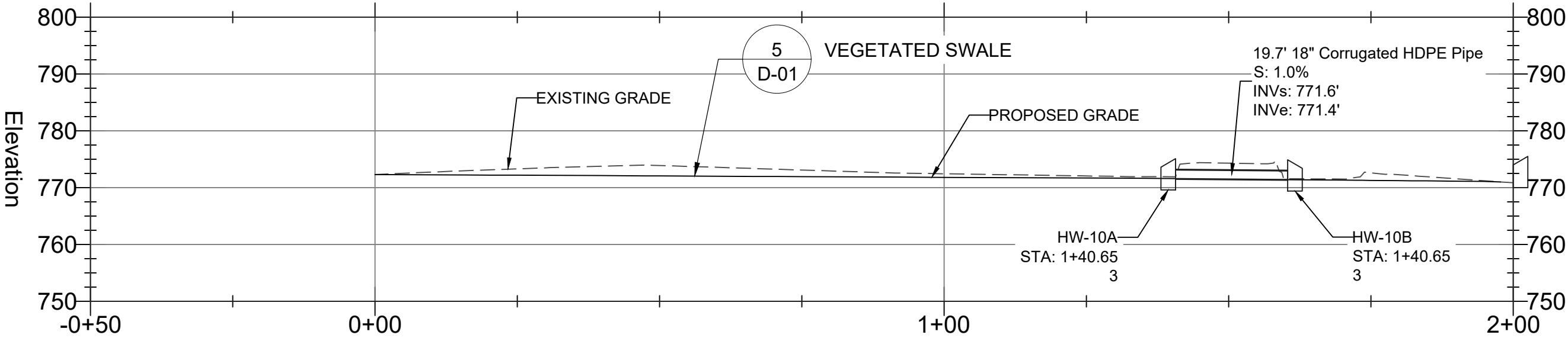
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CROSS SECTIONS PLAN
SHEET 8 OF 8
PAGE 28 OF 32

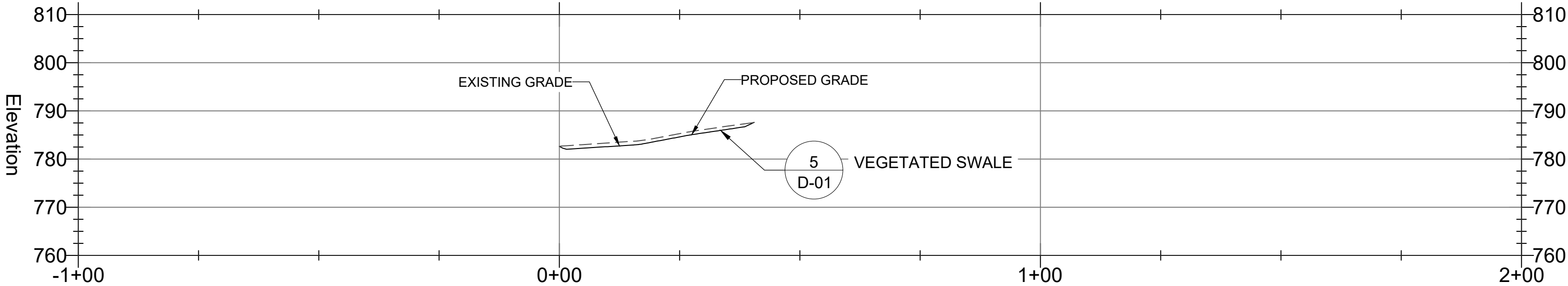
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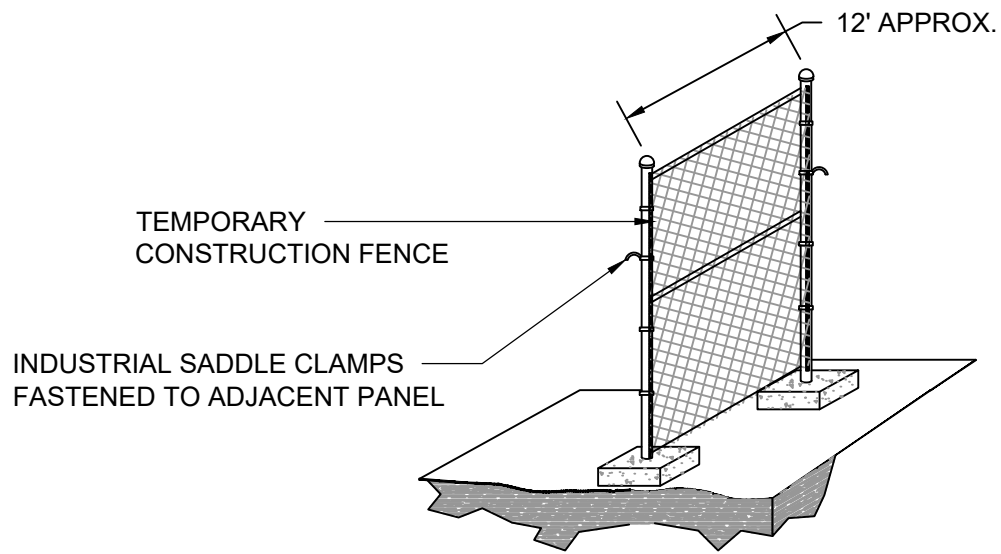
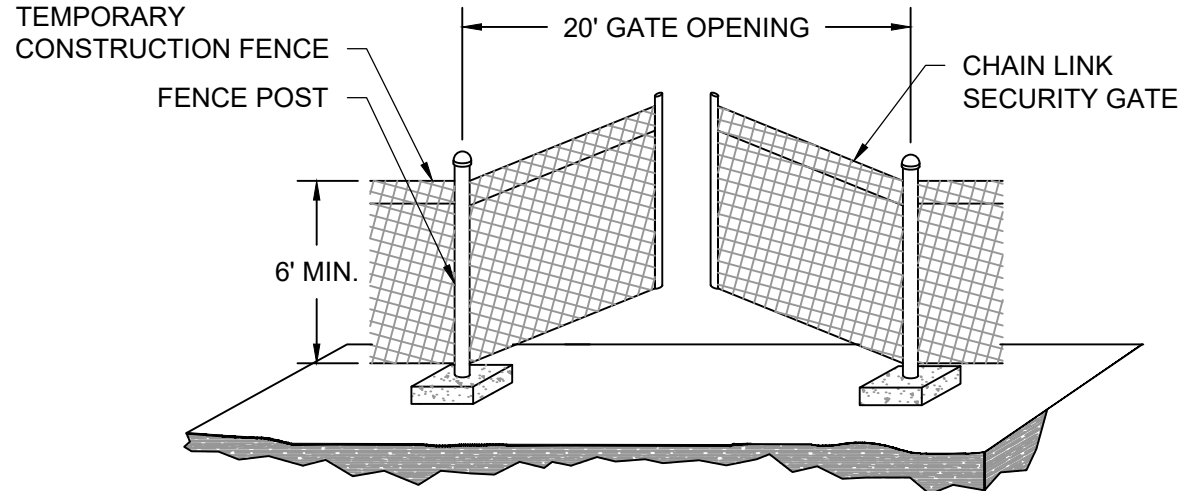
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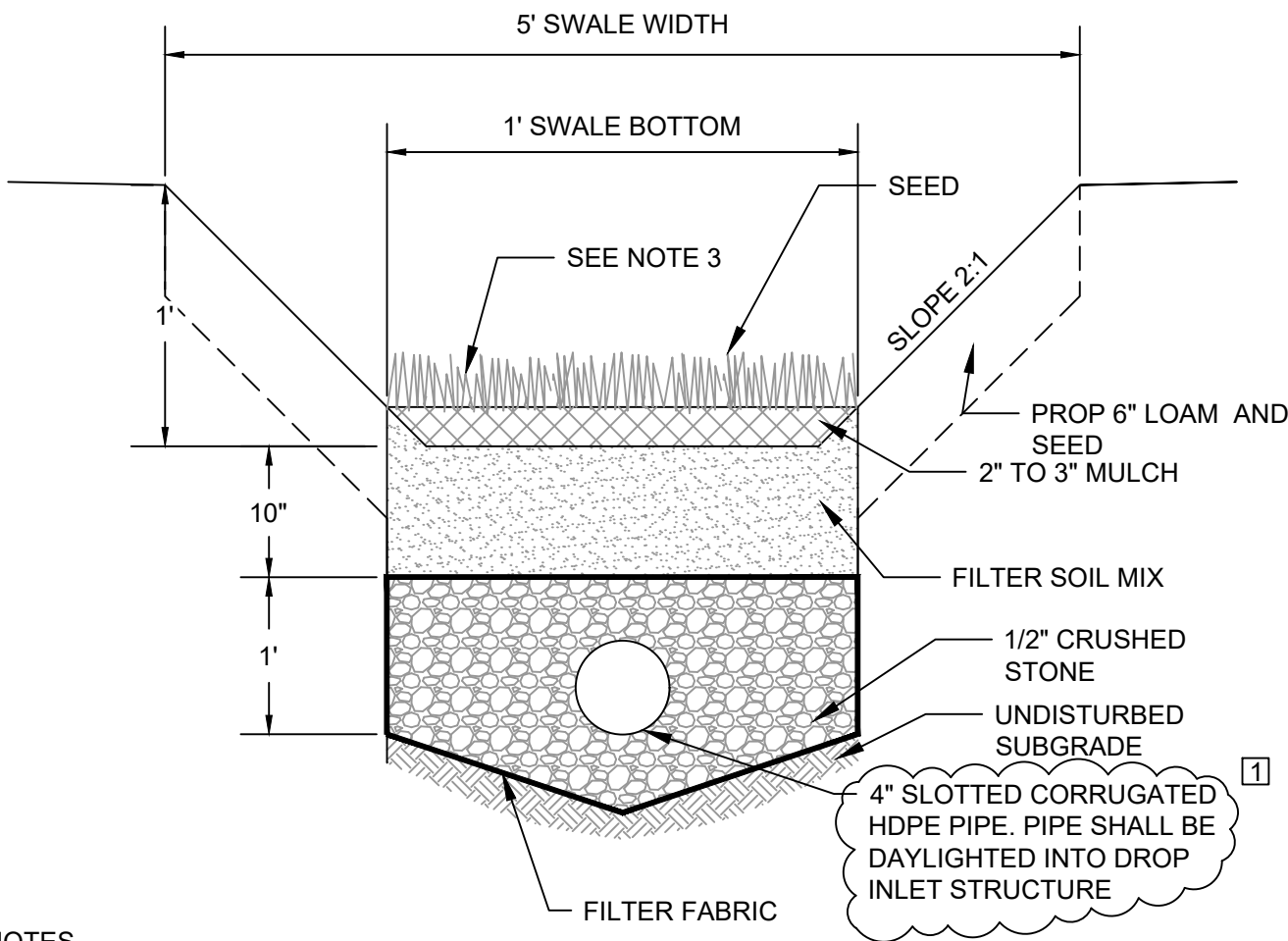


CONSTRUCTION FENCE NOTES:

- FENCE SHALL BE INSTALLED ON STABLE GROUND TO THE EXTENT PRACTICAL.
- FENCE SHALL HAVE PANEL STANDS AND/OR FOOTINGS EVERY 10' APPROXIMATE AND FOOTINGS SHALL BE SECURED WITH SANDBAGS.
- FENCE SHALL BE CHAIN LINK PANELS AND 6' MINIMUM HEIGHT. GREEN OR BLACK PRIVACY SCREENS SHALL BE INSTALLED AND MAINTAINED ON THE FENCING AS REQUIRED BY THE CM.
- A 20' WIDE GATE SHALL BE INSTALLED AT THE CONSTRUCTION ENTRANCE LOCATION.

1 TEMPORARY CONSTRUCTION FENCE

- NTS

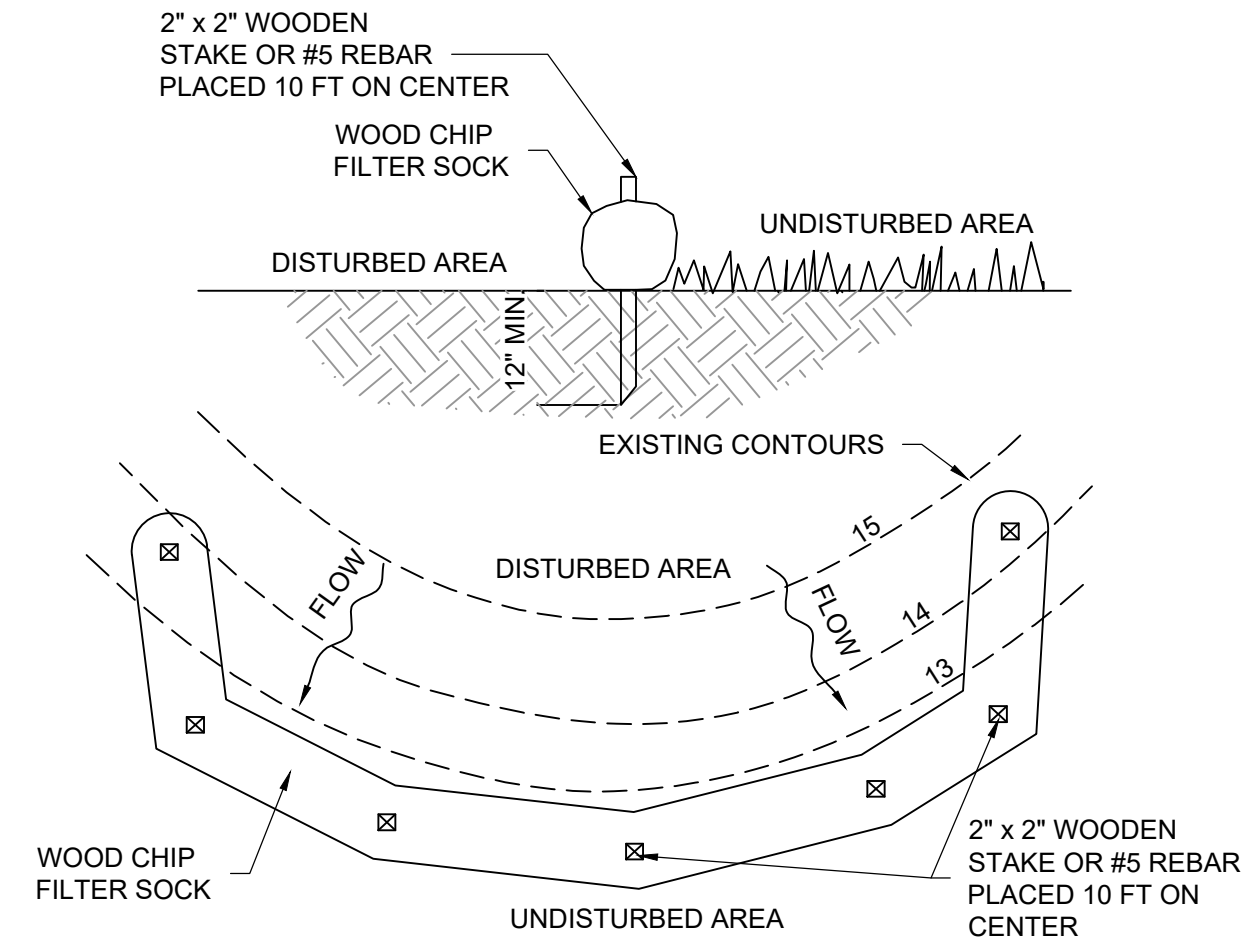


NOTES

- CHECK DAMS
 - FOR CHANNEL SLOPES GREATER THAN 5% TO 10%, 2-INCH STONE (M2.01.1) SHALL BE EMBEDDED TO BOTTOM OF PROPOSED TOPSOIL AND BROUGHT UP TO HALF OF THE SWALE HEIGHT AND EXTENDED TO SLIDE SLOPES FOR A MINIMUM CHANNEL LENGTH OF 2 FEET. CHECK DAMS SHALL BE PLACED EVERY 75' OF CHANNEL LENGTH.
 - FOR CHANNEL SLOPES GREATER THAN 10%, 4-INCH RIPRAP SHALL BE EMBEDDED TO BOTTOM OF PROPOSED TOPSOIL AND BROUGHT UP TO HALF OF THE SWALE HEIGHT AND EXTENDED TO SLIDE SLOPES FOR A MINIMUM CHANNEL LENGTH OF 4 FEET. CHECK DAMS SHALL BE PLACED EVERY 30' OF CHANNEL LENGTH.
- FILTER SOIL MIX
 - SHALL BE FROM A CLEAN SOURCE AND FREE OF DISPOSAL SITE CONTAMINATION
 - SHALL CONTAIN A MINIMUM OF 5% ORGANIC CONTENT AND BE LOAMY IN NATURE
 - INSTALLATION SHALL BE BROADCAST WITH EXCAVATOR BUCKET FROM LESS THAN 2' IN HEIGHT AND RAKED TO GRADE
- SEED
 - NEW ENGLAND WETLAND PLANT, INC "NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES" MIX OR EQUIVALENT
 - APPLICATION RATE: 35 LBS/ACRE
 - 25% BY WEIGHT OF WINTER RYE SHALL BE ADDED TO SEED MIX FOR EARLIER WINTER INSTALLATION
- SHORT TERM EROSION CONTROL FABRIC
 - SHALL BE SINGLE NET STRAW BLANKETS WITH BIODEGRADABLE JUTE NETTING.
 - SHALL BE INSTALLED ON ANY SLOPES GREATER THAN 3H:1V.

5 VEGETATED SWALE

- NTS

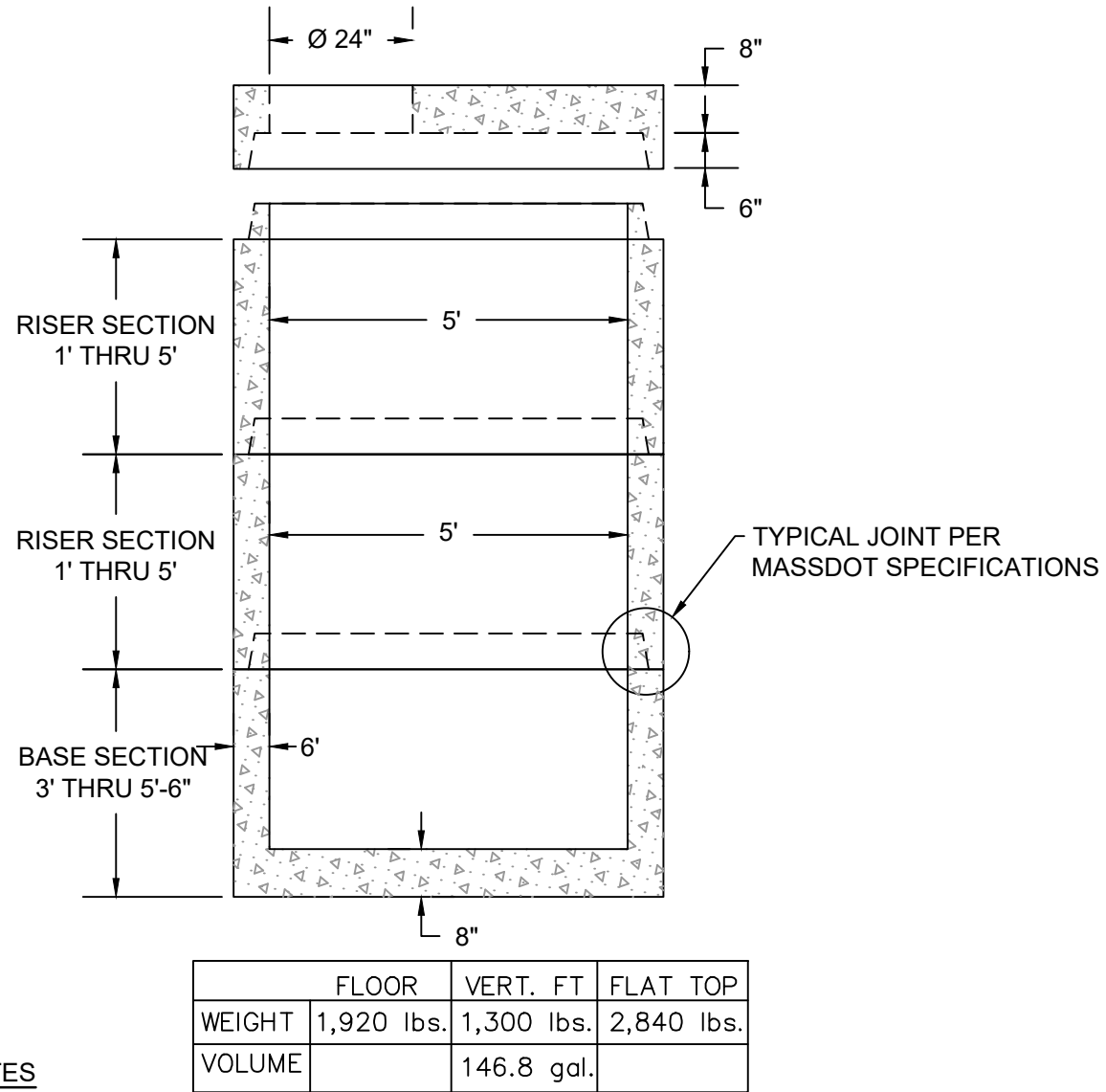


COMPOST FILTER SOCK NOTES:

- PRODUCT SHALL BE FILTREXX SILTSOXX® ORIGINAL, 12" DIAMETER, AND GREEN COLOR MESH.
- TRAFFIC SHALL NOT BE PERMITTED TO CROSS WOOD CHIP FILTER SOCKS.
- ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN ACCORDANCE WITH THE SPECIFICATIONS.
- WOOD CHIP FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED OR RESECURED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
- BIODEGRADABLE WOOD CHIP FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, THE SOCK AND STAKES OR #5 REBAR SHALL BE REMOVED.
- ALTERNATIVE FILTER SOCK TYPES MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
- ANCHORING ON CONCRETE OR PAVEMENT SHALL BE WITH 50 LB (MIN.) SANDBAGS EVERY 10 FT ON CENTER.

2 COMPOST FILTER SOCK

- NTS

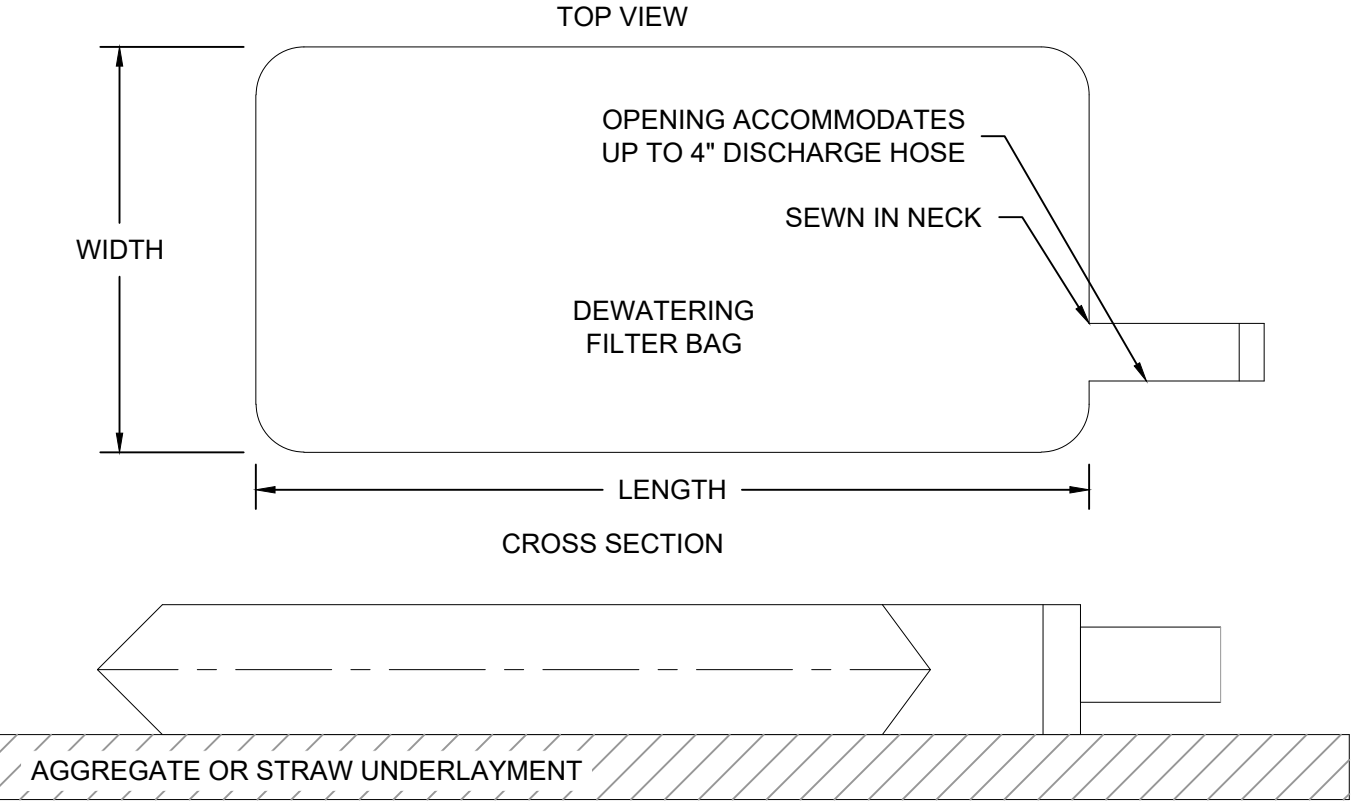


NOTES

- MANUFACTURED TO MEET OR EXCEED: ASTM C-478 & AASHTO M 199 SPECS.
- CONCRETE = 4,000 PSI MINIMUM CEMENT PER ASTM C-478 (6.1).
- REINFORCED STEEL COMFORMS TO LATEST ASTM A 185 SPECIFICATIONS. 0.12 SQ. IN / LINEAR FT. AND 0.12 SQ. IN (BOTH WAYS) BASE BOTTOM.
- STEEL REINFORCEMENT TO MEET OR EXCEED AASHTO HS-20 LOADING.
- MANHOLE STEPS MEET LATEST OSHA REGULATION 29 CFR1910.27, SECTION 16 OF ASTM SPECIFICATION C478 AND SECTION 10 OF ASTM SPECIFICATION C497.
- BUTYL RUBBER JOINT SEALANT PER ASTM C-990 & ASHTO M-198.
- FRAME AND LIDS SHALL HAVE A MINIMUM LOAD RATING OF H20 AND NOT EXCEED 4" IN HEIGHT.
- 12" THICK LAYER OF CRUSHED STONE PLACED AND COMPACTED A MINIMUM OF 12" OFFSET FROM OUTER EDGE OF STRUCTURE.

6 DRAINAGE MANHOLE

- NTS

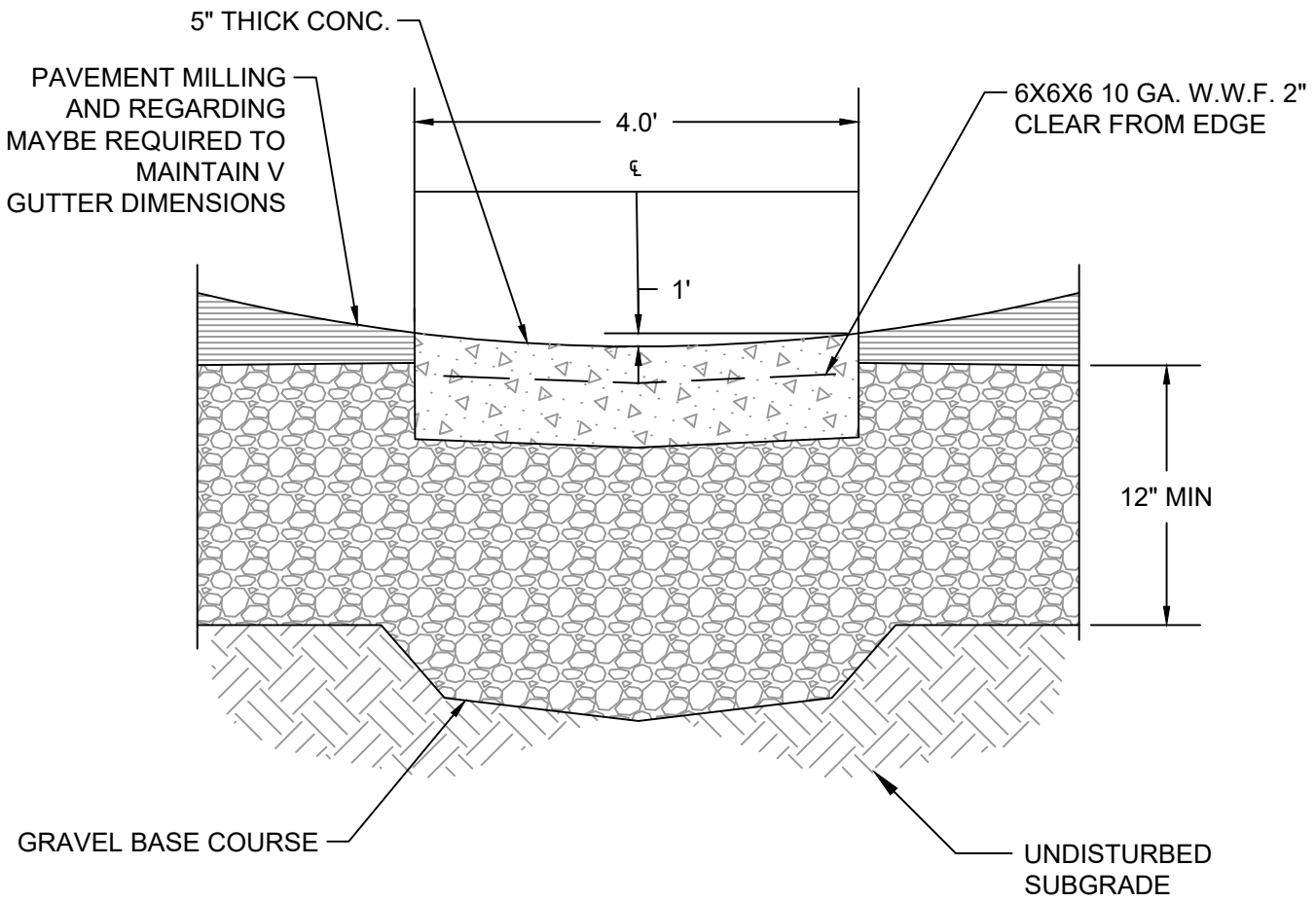


GEOTEXTILE FILTER BAG NOTES:

- FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. SEAMS SHALL BE TESTED UNDER ASTM D-4884 AND ACF TEST RESULTS SHALL BE MADE AVAILABLE TO THE ENGINEER UPON REQUEST.
- A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES MUST BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME HALF FULL. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED.
- GEOTEXTILE FILTER BAG TO BE PLACED ON AGGREGATE OR STRAW AND IN A WELL VEGETATED AREA.
- THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED.
- THE PUMPING RATE SHALL BE NO GREATER THAN 750 GALLONS PER MINUTE (GPM) OR 1/3 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHOULD BE FLOATING AND SCREENED. LOW FLOW SUBMERSIBLE PUMPS WITH FLOAT CONTROLS ARE ANTICIPATED.
- GEOTEXTILE FILTER BAG AND THE PUMP SHALL BE INSPECTED EACH WORKDAY. NECESSARY REPAIRS, REPLACEMENTS, AND MAINTENANCE TO MATERIAL AND EQUIPMENT SHALL BE MADE BASED ON THESE INSPECTIONS.

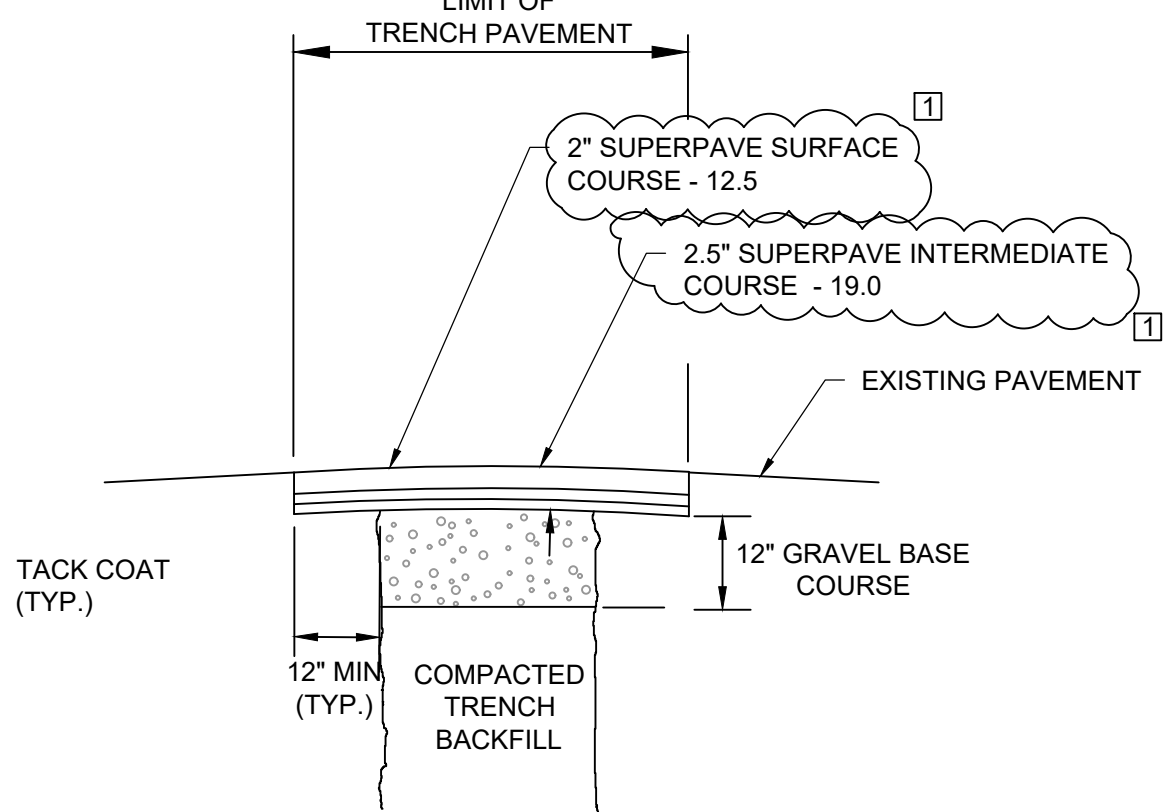
3 GEOTEXTILE FILTER BAG

- NTS



7 V GUTTER CHANNEL

- NTS

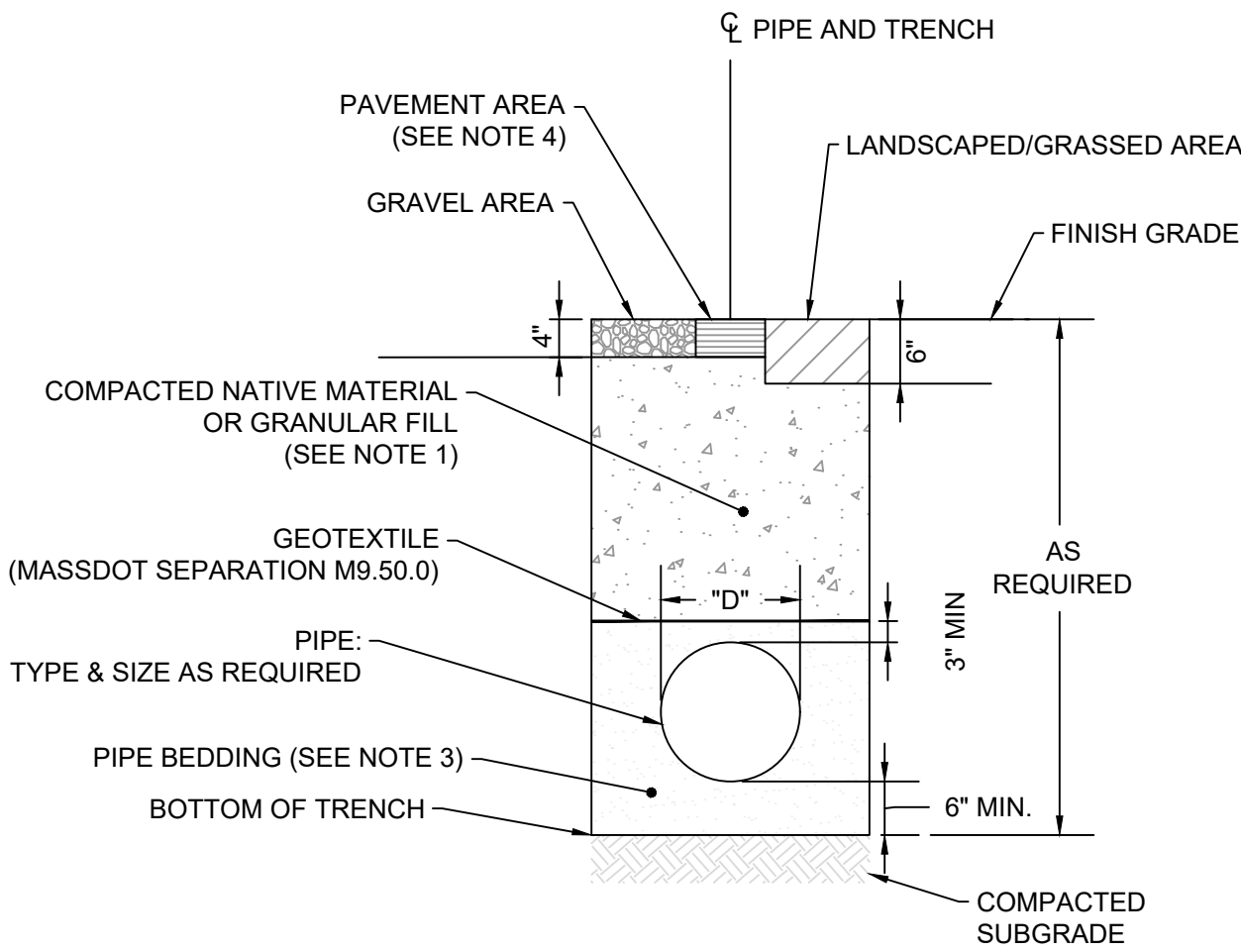


PERMANENT PAVEMENT NOTES:

- A TACK COAT SHALL BE APPLIED AT ALL LOCATIONS WHERE BITUMINOUS CONCRETE TOP COURSE MEETS EXISTING PAVEMENT AND WHERE BINDER COURSE BUTTS EXISTING PAVEMENTS.

4 TRENCH PAVING DETAIL

- NTS



NOTES

- NATIVE MATERIAL OBTAINED FROM EXCAVATION THAT IS DETERMINED TO BE SUITABLE, AND APPROVED BY THE ENGINEER SHALL BE USED. BACKFILL SHALL BE PLACED IN LAYERS NO MORE THAN 6" IN DEPTH AND THOROUGHLY COMPACTED. BACKFILLING TO A POINT 2' OVER THE PIPE SHALL CONTAIN NO STONES LARGER THAN 3".
- SOFT OR UNSUITABLE MATERIAL EXISTING BELOW THE REQUIRED BEDDING GRADE SHALL BE REMOVED AS DIRECTED AND REPLACED WITH SAND, GRAVEL, CRUSHED STONE OR OTHER SUITABLE MATERIAL AND THOROUGHLY COMPACTED.
- PIPE BEDDING SHALL BE BEDDING SAND (MASSDOT M1.04.1) OR 3/4" CRUSHED STONE (MASSDOT M2.01.4).
- REFER TO DETAIL 4 TRENCH PAVING DETAIL FOR INSTALLATION.

8 TYPICAL TRENCH FOR STORM DRAINAGE PIPE

- NTS

AECOM

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LAUREL LAKE
DRAINAGE INFRASTRUCTURE
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REGISTRATION



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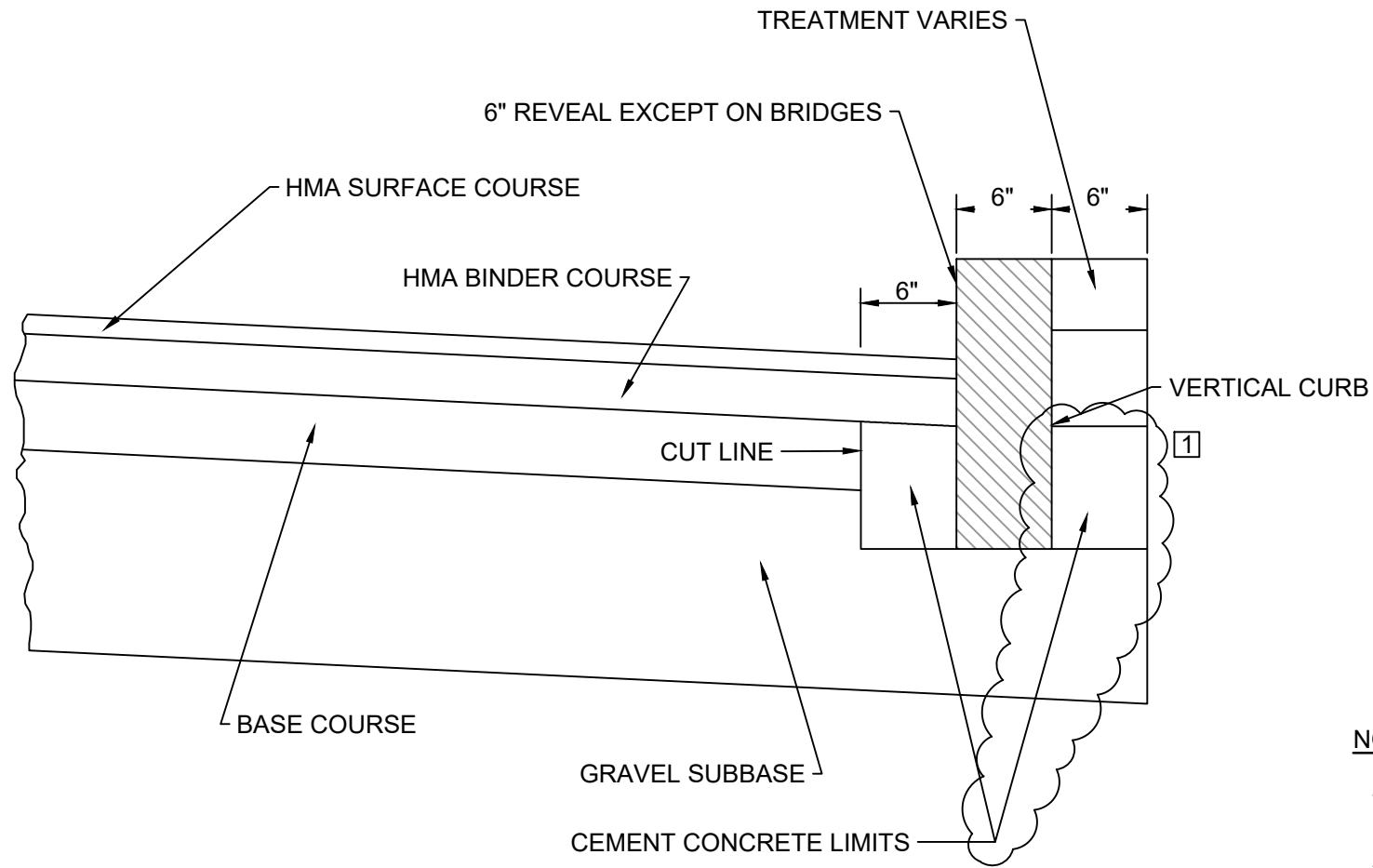
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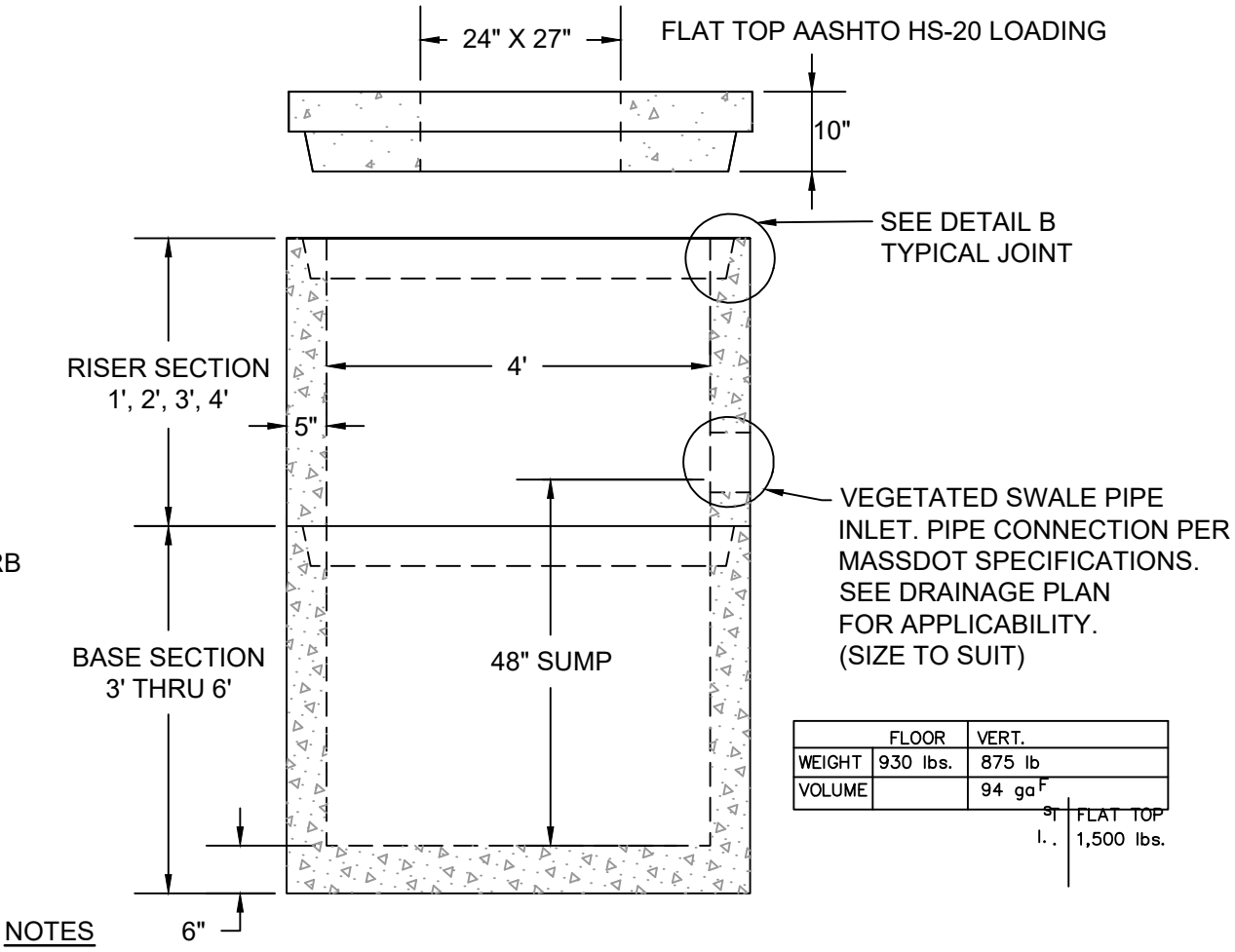
D-01



- NOTES
- THIS PROCEDURE IS APPLICABLE ONLY IF CURB IS TO BE SET AFTER BASE COURSE IS IN PLACE PRIOR TO BINDER AND TOP PLACEMENT.
 - CUT NEAT LINE 6" FROM CURB LINE AND REMOVE BASE AND GRAVEL. REPLACE WITH CEMENT CONCRETE.
 - ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER MASSDOT SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED; ALL TEST REQUIREMENTS ARE WAIVED. HOT MIXED ASPHALT SHALL BE USED AS A SUBSTITUTE.

9 VERTICAL CURB

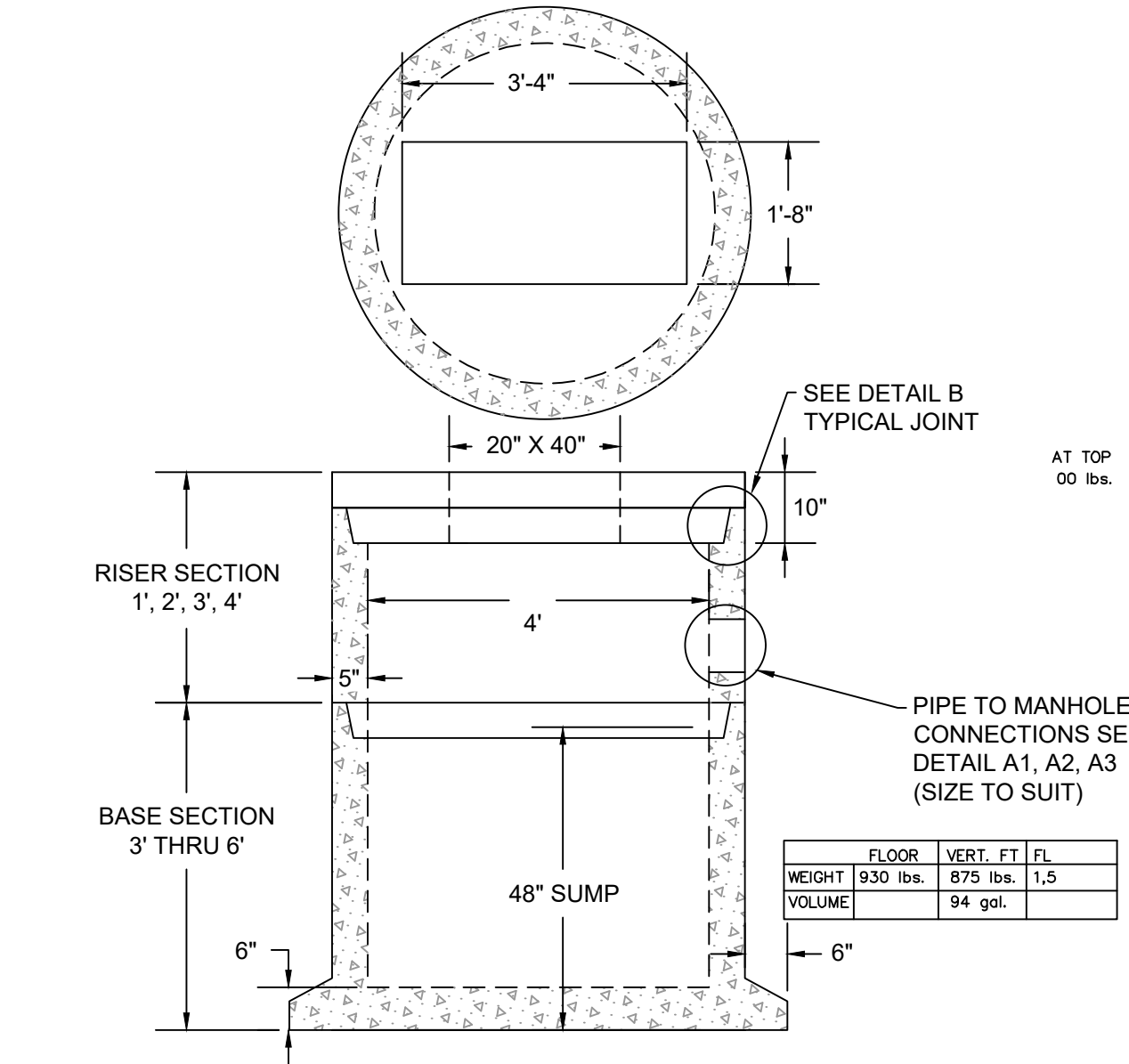
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- NOTES
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 - CONCRETE = 4,000 PSI MINIMUM CEMENT PER ASTM C-478 (6.1).
 - REINFORCED STEEL CONFORMS TO LATEST ASTM A 185 SPECIFICATIONS. 0.12 SQ. IN / LINEAR FT. AND 0.12 SQ. IN (BOTH WAYS) BASE BOTTOM.
 - STEEL REINFORCEMENT TO MEET OR EXCEED AASHTO HS-20 LOADING.
 - MANHOLE STEPS MEET LATEST OSHA REGULATION 29 CFR1910.27, SECTION 16 OF ASTM SPECIFICATION C478 AND SECTION 10 OF ASTM SPECIFICATION C497.
 - BUTYL RUBBER JOINT SEALANT PER ASTM C-990 & ASHTO M-198.
 - WATER PROOFING PER CONTRACT SPECS AS REQUIRED.
 - STRUCTURES IDENTIFIED WITH PREFIX "DI" SHALL BE FITTED WITH DROP INLET GRATES AND PREFIX "CB" SHALL BE FITTED WITH CASCADE GRATES, PER MASSDOT SPECIFICATIONS. GRATE/FRAMES SHALL NOT EXCEED 4" IN HEIGHT.
 - 12" THICK LAYER OF CRUSHED STONE PLACED AND COMPACTED A MINIMUM OF 12" OFFSET FROM OUTER EDGE OF STRUCTURE.

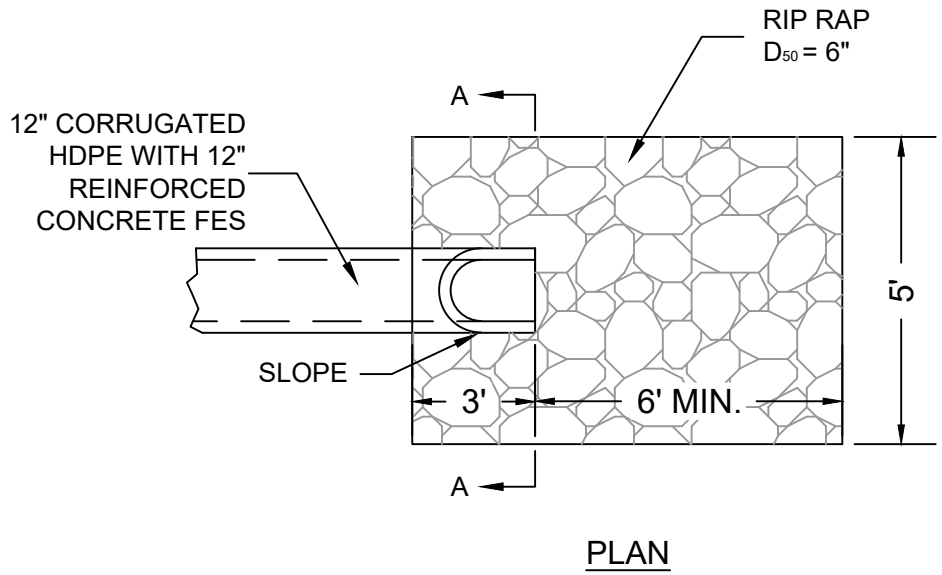
10 SINGLE CATCH BASIN

NTS

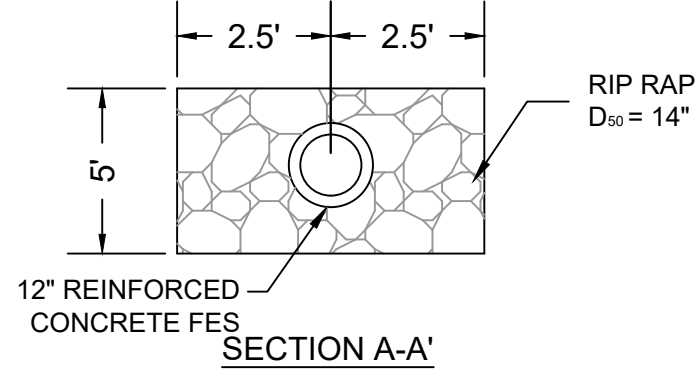


11 DOUBLE CATCH BASIN

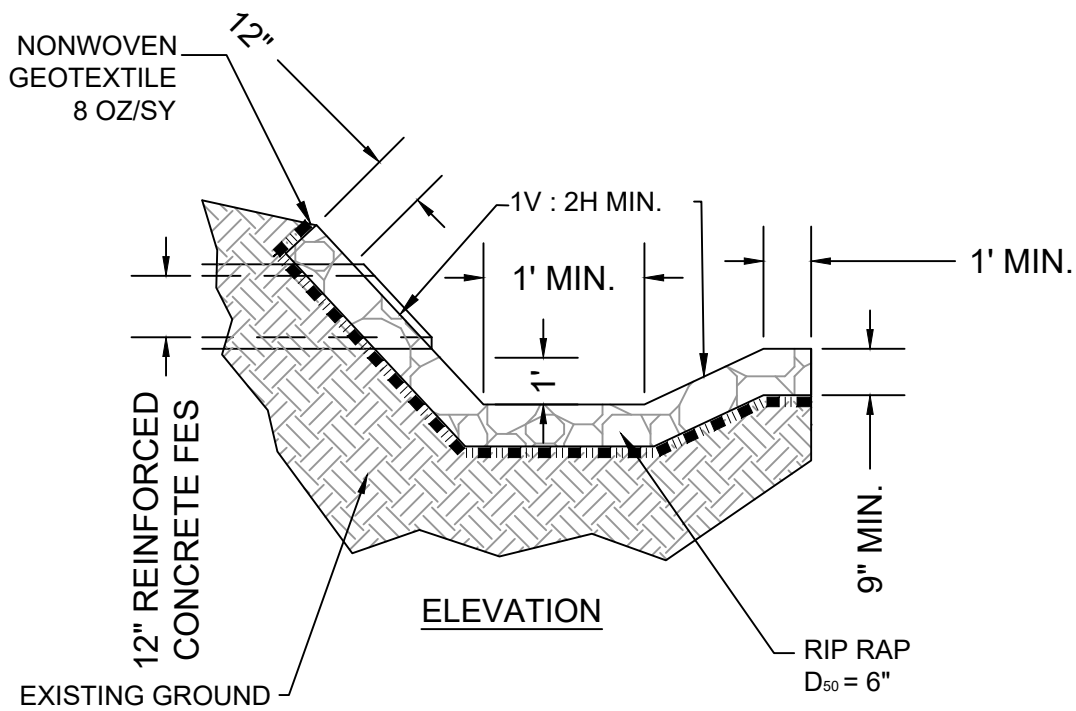
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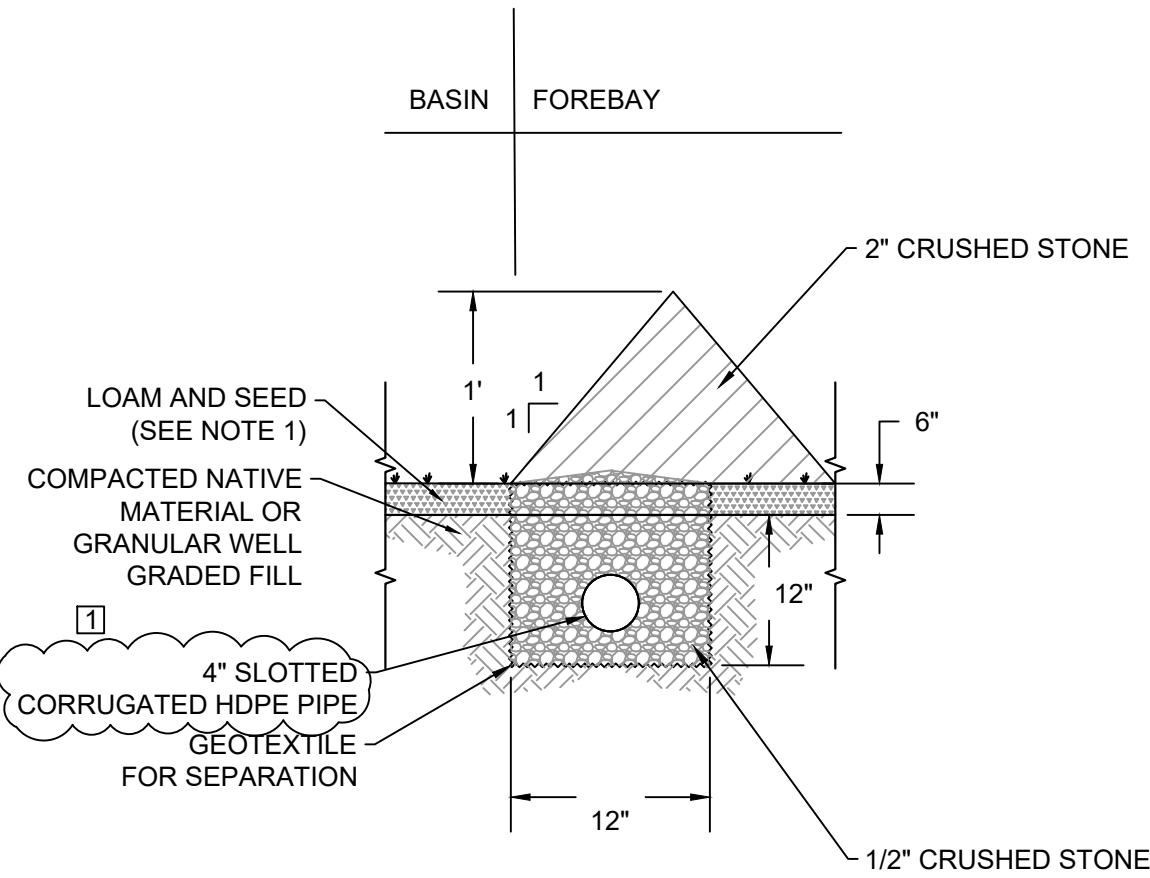
PLAN



SECTION A-A'



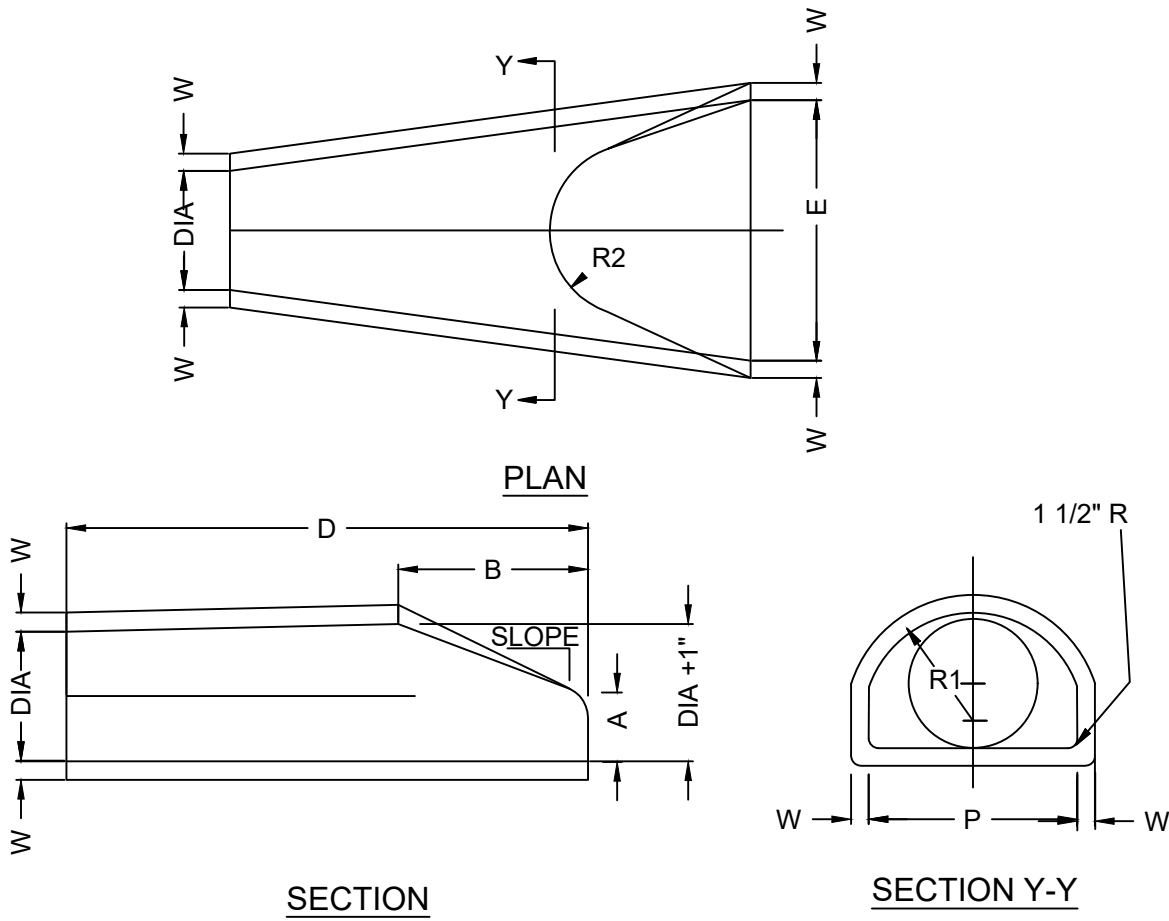
ELEVATION



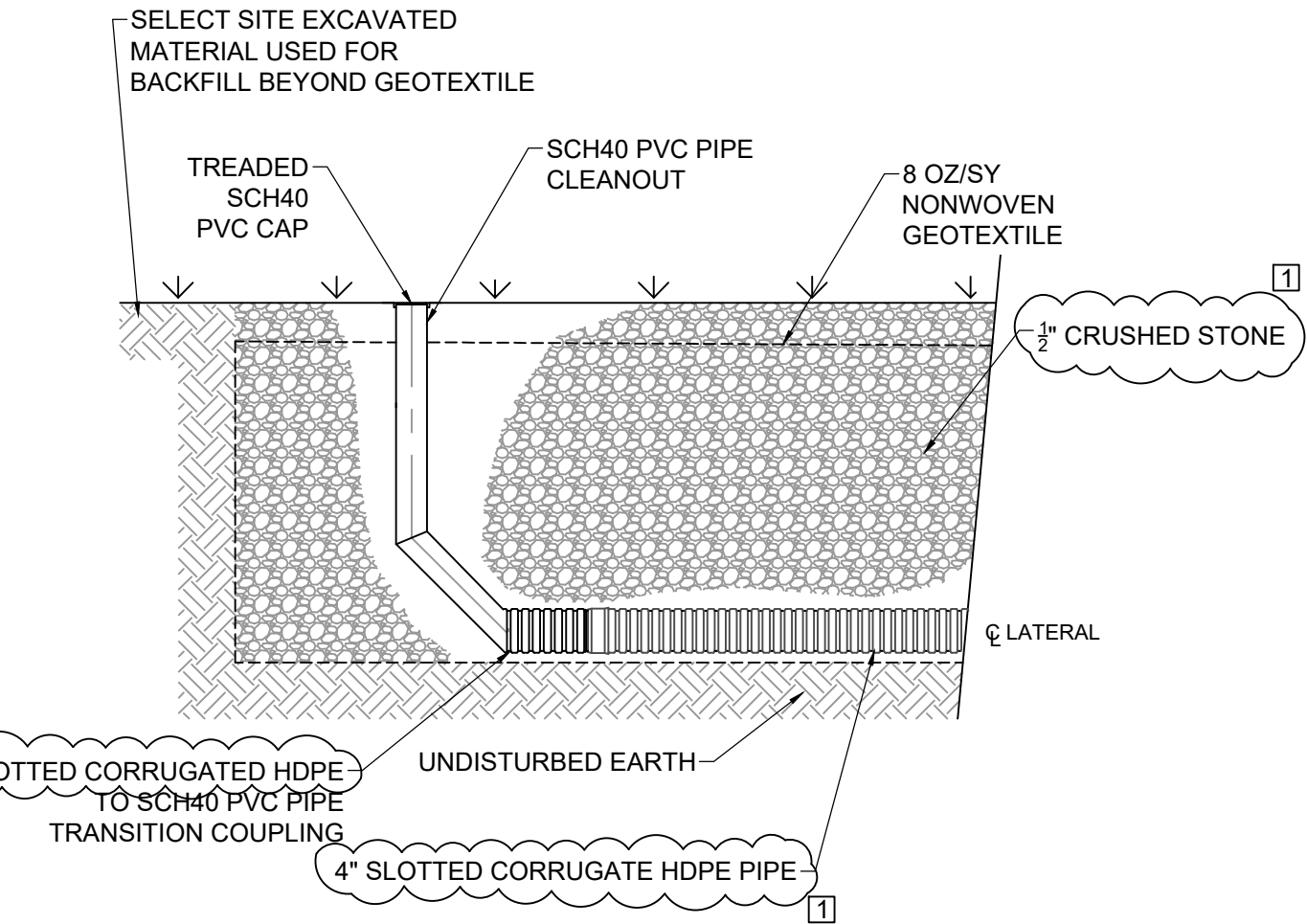
- NOTES
- SEED SHALL BE FROM NEW ENGLAND WETLAND PLANTS, INC. NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES.

12 BASIN SUBDRAIN/FOREBAY BERM

NTS



Diameter	W (in)	A (in)	B (in)	D (in)	E (in)	P (in)	DIA. +1 (in)	R1 (in)	R2 (in)	SLOPE
12"	2"	4"	2'-0"	6'-0"	2'-0"	19 15/16"	13"	10 1/8"	9"	1V:3H



- NOTES:
- TO ALLOW FOR FUTURE CLEANOUTS, A MINIMUM OF 2 45 DEGREE BENDS WITHIN A MINIMUM OF 1 FOOT OF PIPE SECTION BETWEEN SHALL BE USED INSTEAD OF A SINGLE 90 DEGREE BEND.

14 CLEANOUT

NTS

PROJECT

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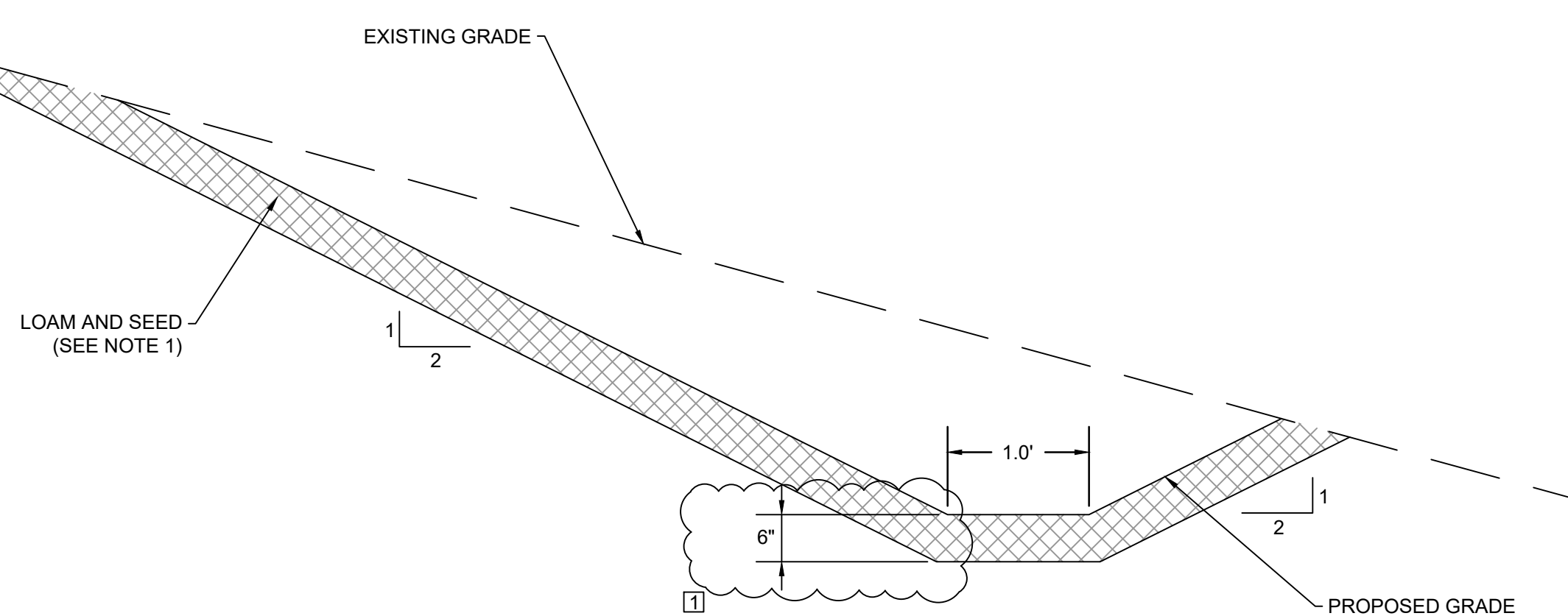
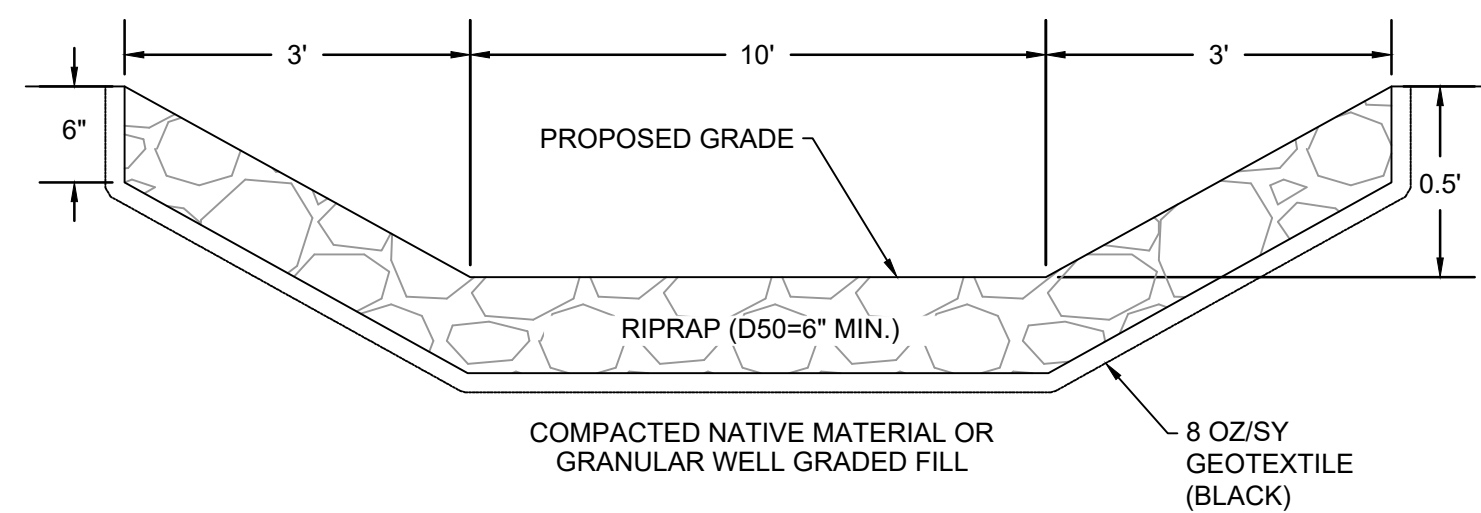
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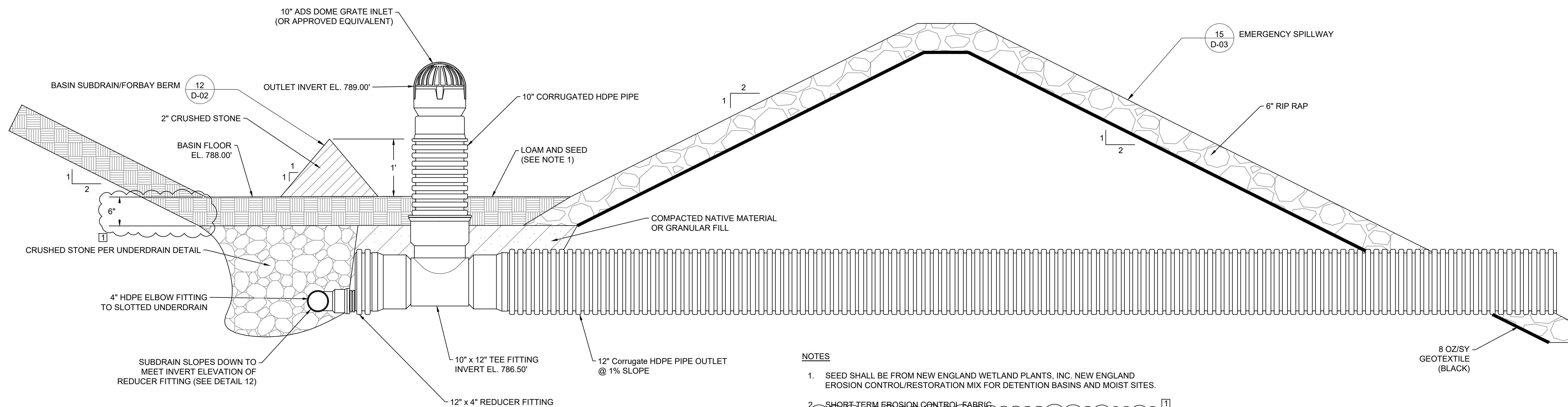
D-02



NOTES

1. SEED SHALL BE FROM NEW ENGLAND WETLAND PLANTS, INC. NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES.

15 EMERGENCY SPILLWAY
- NTS



NOTES

1. SEED SHALL BE FROM NEW ENGLAND WETLAND PLANTS, INC. NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES.

2. SHORT TERM EROSION CONTROL FABRIC
- 2.1. SHALL BE SINGLE NET STRAW BLANKETS WITH BIODEGRADABLE JUTE NETTING.
- 2.2. SHALL BE INSTALLED ON ANY SLOPES GREATER THAN 3H:1V.

17 STORMWATER CONTROL STRUCTURE
- NTS

PROJECT

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WARWICK, MA

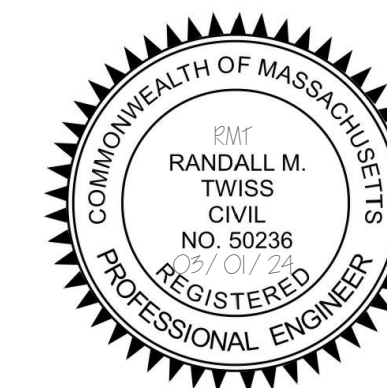
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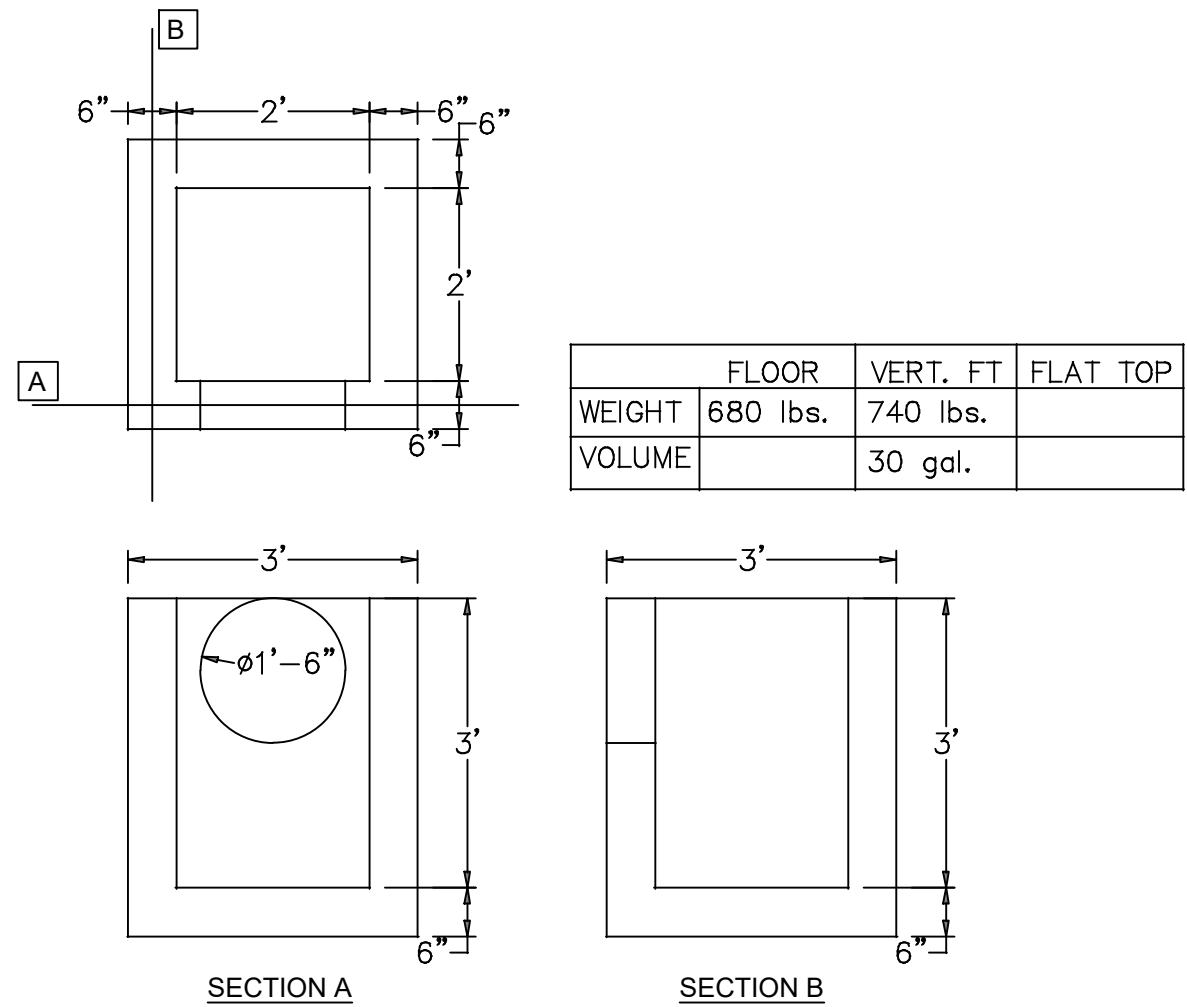
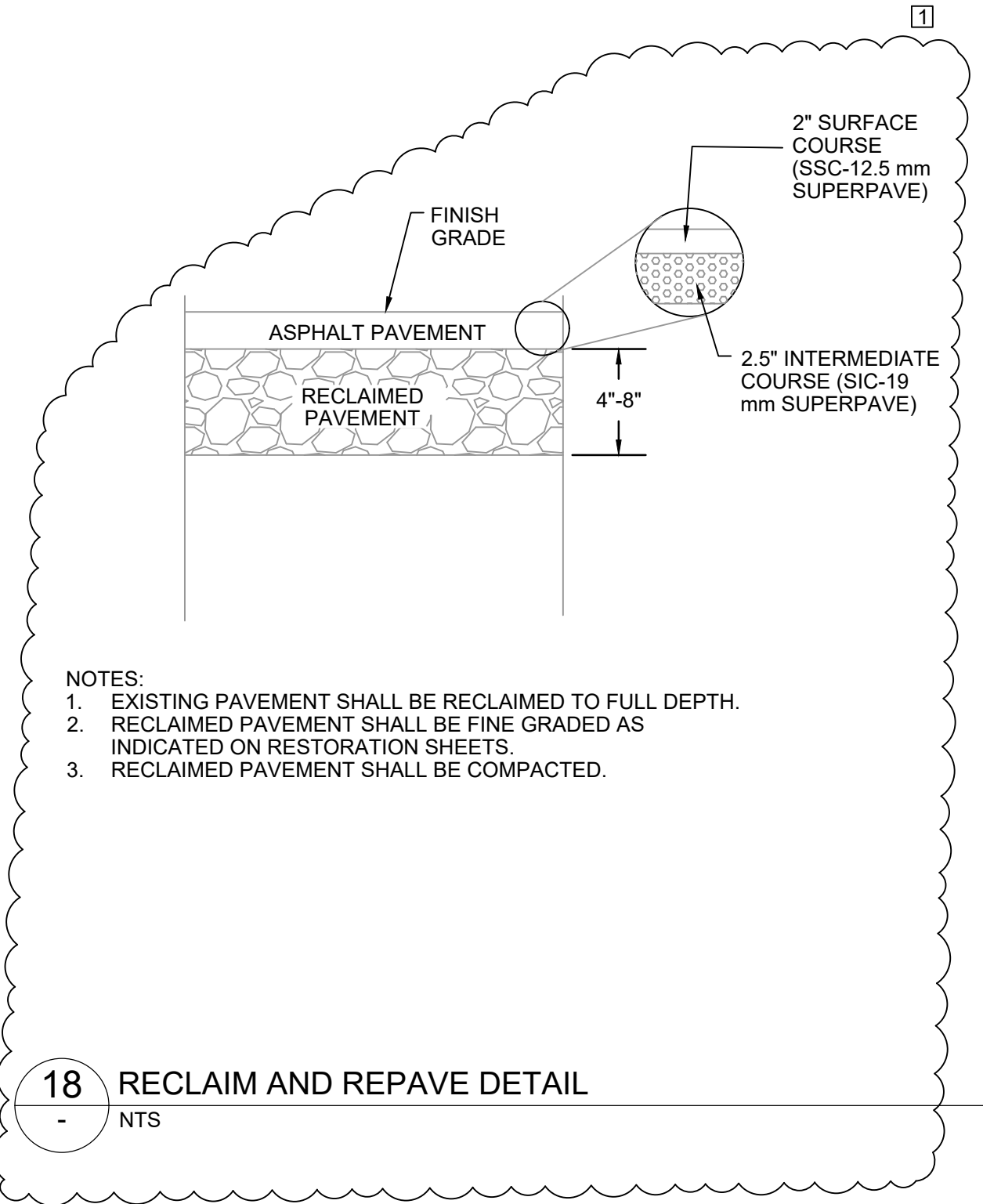
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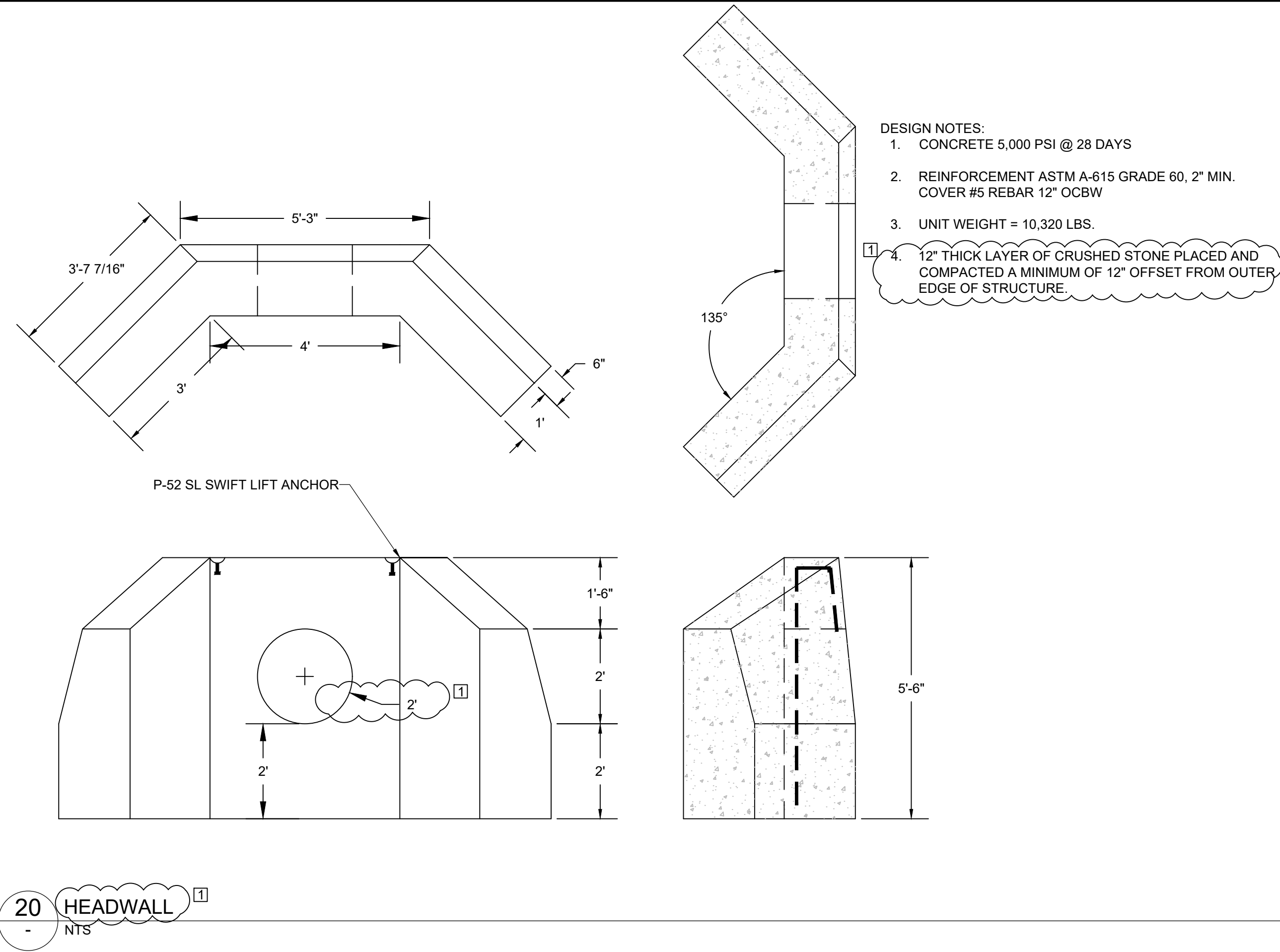
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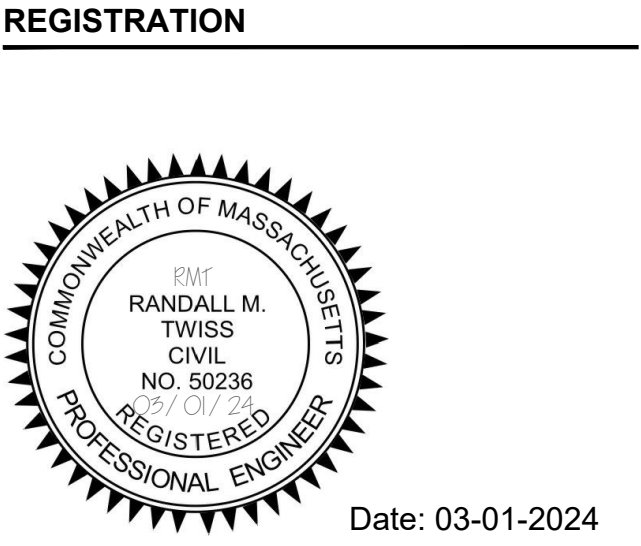
- DESIGN NOTES:
1. CONCRETE 5,000 PSI @ 28 DAYS
 2. REINFORCEMENT ASTM A-615 GRADE 60, 1" MIN. COVER
 3. DESIGNED FOR H-20 LOADING
 4. PRODUCT WEIGHT = 2,720 LBS.
 5. 12" THICK LAYER OF CRUSHED STONE PLACED AND COMPACTED A MINIMUM OF 12" OFFSET FROM OUTER EDGE OF STRUCTURE.



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