

BAKER CREEK UPSLOPE GROUNDWATER RECHARGE PROJECT

HUMBOLDT COUNTY, CA

CONSTRUCTION AND GRADING NOTES:

- DESIGN INTENT. THESE DRAWINGS REPRESENT THE GENERAL DESIGN INTENT TO BE IMPLEMENTED AND CONTRACTOR IS RESPONSIBLE FOR ALL ITEMS SHOWN ON THESE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE PROJECT MANAGER FOR ANY CLARIFICATIONS OR FURTHER DETAILS NECESSARY TO ACCOMMODATE ACTUAL SITE CONDITIONS. ANY DEVIATION FROM THESE PLANS WITHOUT THE SFI'S REPRESENTATIVE APPROVAL ARE AT THE CONTRACTOR'S OWN RISK AND EXPENSE. NOTIFY PROJECT MANAGER IMMEDIATELY OF ANY UNEXPECTED AND CHANGED CONDITIONS, SAFETY HAZARDS, AND ENVIRONMENTAL PROBLEMS ENCOUNTERED.
- JOB SITE CONDITIONS AND CONTRACTOR RESPONSIBILITY. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR SITE CONDITIONS DURING THE COURSE OF THE CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY, AND ALL ENVIRONMENTAL PROTECTION ELEMENTS, WHETHER SHOWN ON THESE DRAWINGS OR NOT. CONTRACTOR SHALL FOLLOW ALL APPLICABLE CONSTRUCTION AND SAFETY REGULATIONS. THESE REQUIREMENTS SHALL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE SFI OR THE ENGINEER (STILLWATER SCIENCES) HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FROM LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE SFI OR ENGINEER.
- DAMAGE. CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO EXISTING PUBLIC AND PRIVATE PROPERTY, INCLUDING NATIVE TREES AND SHRUBS OUTSIDE OF THE PROJECT BOUNDARIES, AND OTHER PROPERTY IMPROVEMENTS. IF CONTRACTOR CAUSES DAMAGES TO SUCH ITEMS, HE SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT IN LIKE NUMBER, KIND, CONDITION, AND SIZE. ANY SUCH COST MAY BE DEDUCTED BY OWNER FROM MONIES DUE CONTRACTOR UNDER THIS CONTRACT.
- LIMITS OF WORK, ACCESS, STAGING AND MOBILIZATION AREAS. EXACT LIMITS OF WORK, POINTS OF INGRESS-EGRESS, MOBILIZATION, STAGING, AND WORK AREAS WILL BE IDENTIFIED IN THE FIELD BY THE SFI AND/OR ENGINEER. EQUIPMENT MAINTENANCE AND FUELING MUST OCCUR OUTSIDE OF THE CHANNEL AREA AS DESCRIBED IN THE ENVIRONMENTAL PERMITS FOR THE PROJECT.
- EARTHWORK QUANTITIES. CONTRACTOR IS RESPONSIBLE FOR ALL EARTHWORK, INCLUDING GRADING AS SHOWN ON DRAWINGS, AND DISPOSAL OF ALL EXCESS SOIL AND RUBBLE. EARTHWORK QUANTITIES PROVIDED BY THE ENGINEER ARE ESTIMATES ONLY. SFI AND ENGINEER DO NOT, EXPRESSLY OR OTHERWISE BY IMPLICATION, EXTEND ANY WARRANTY TO EARTHWORK CALCULATIONS.
- AREAS TO BE GRADED INCLUDING BORROW SITES WITHIN THE EXTENTS OF THE PONDS AND AREAS UNDER THE POND DIKE SHALL BE CLEARED OF ALL TOPSOIL AND VEGETATION INCLUDING ROOTS AND OTHER UNSUITABLE MATERIAL FOR A STRUCTURAL FILL. AREAS RECEIVING FILL SHALL BE SCARIFIED TO A DEPTH OF 6 INCHES PRIOR TO PLACING OF ANY FILL. AFTER FINAL GRADES ARE MET, TOPSOIL MATERIAL SHALL BE PLACED BACK ON TOP OF ALL AREAS THAT HAVE RECEIVED FILL WITH THE EXCEPTION OF THE POND AREAS SPECIFICALLY DESIGNED TO HOLD WATER.
- AREAS WITH EXISTING SLOPES WHICH ARE TO RECEIVE FILL MATERIAL SHALL BE KEYED AND BENCHED.
- FILL MATERIAL SHALL BE SPREAD IN LIFTS NOT EXCEEDING 12 INCHES IN COMPACTED THICKNESS, MOISTENED OR DRIED AS NECESSARY TO NEAR OPTIMUM MOISTURE CONTENT AND COMPACTED BY AN APPROVED METHOD. FILL MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 90% MAXIMUM DENSITY AS DETERMINED BY 1957 ASTM D - 1557 - 91 MODIFIED PROCTOR (AASHO) TEST OR SIMILAR APPROVED METHODS.
- CUT AND FILL SLOPES SHALL NOT EXCEED A GRADE OF 2 HORIZONTAL TO 1 VERTICAL. ALL DISTURBED GROUND SHALL BE PLANTED WITH NATIVE GRASS SEED AND MULCHED OR COVERED WITH THE VEGETATION THAT WAS REMOVED FROM THE SITE PRIOR TO GRADING.
- BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES: ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ONSITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES, OR WIND. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. TRASH AND CONSTRUCTION RELATED SOLID WASTE MUST BE DEPOSITED INTO A COVERED WASTE RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND. SEDIMENTS AND OTHER MATERIAL MAY NOT BE TRACKED FROM TO THE SITE BY VEHICLE TRAFFIC.

EARTHWORK ESTIMATES:

CUT: 7,500 CY FOR POND EXCAVATION
 FILL: 2,500 CY FOR POND DIKE CONSTRUCTION
 5,000 CY IN OTHER AREAS AS SHOWN ON SHEET 2
 7,500 CY TOTAL

SHEET INDEX:

- TITLE SHEET
- PROJECT DESIGN PLAN VIEW
- SECTIONS, DETAILS AND SPECIFICATIONS

ABBREVIATIONS:

(N) = NEW
 (E) = EXISTING

NEW POND OVERVIEW TABLE:

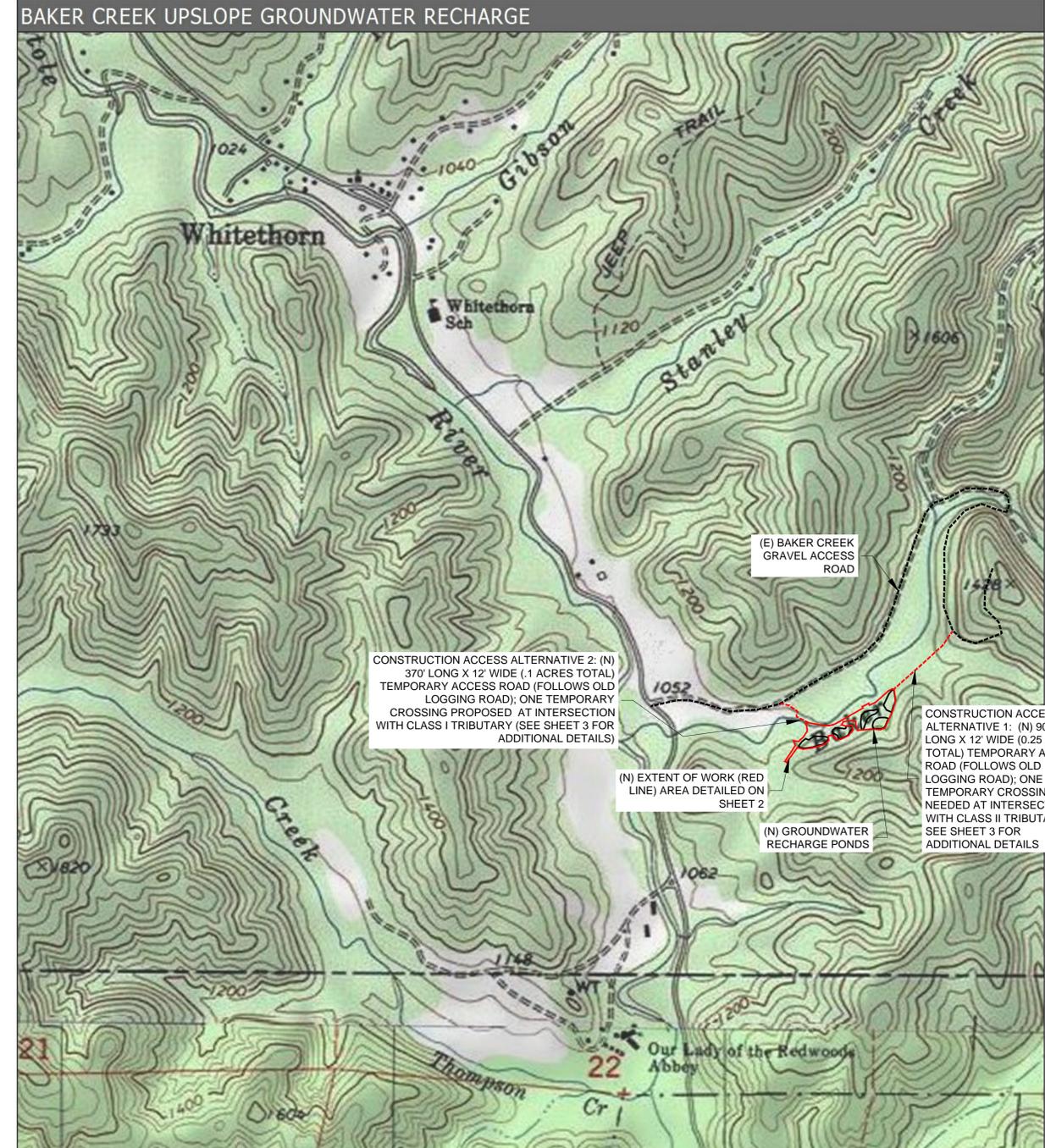
Pond #	Dike Area (ft ²)	Dike Volume (CY)	Pond Area (ft ²)	Total Area (ft ²)	Pond Volume (gallons)	Average Pond Depth (ft)
1	8,000	800	17,000	25,000	600,000	4.7
2	7,000	700	14,000	21,000	550,000	5.2
3	7,000	500	14,000	21,000	550,000	5.2
4	5,000	300	15,000	20,000	500,000	4.4
5	4,000	200	22,000	26,000	600,000	3.6
Total	31,000	2,500	82,000	113,000	2,800,000	

PROJECT IMPACTS OVERVIEW TABLE:

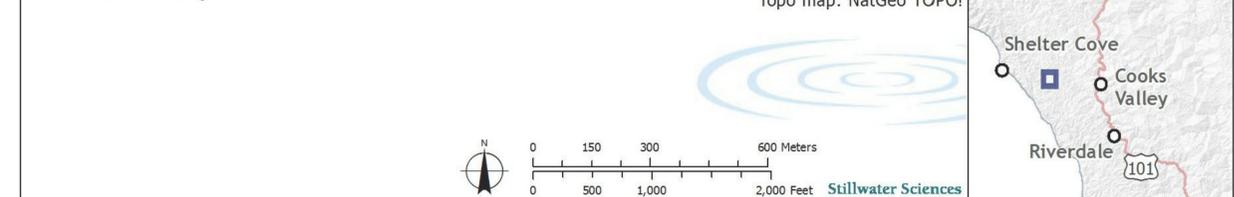
Project Component	Area (sf)	Area (acres)
Wetted areas of ponds	82,000	1.88
Dikes of ponds	31,000	0.71
Additional fill placement	37,500	0.86
Temporary access road	10,800	0.25
Other disturbance (staging, spillways, temp access within project area, etc.)	45,191	1.04
Total	206,491	4.74

100% DESIGN

PROJECT LOCATION MAP:



Overview Map



**BAKER CREEK
UPSLOPE GROUNDWATER RECHARGE**
 SANCTUARY FOREST
 HUMBOLDT COUNTY, CA

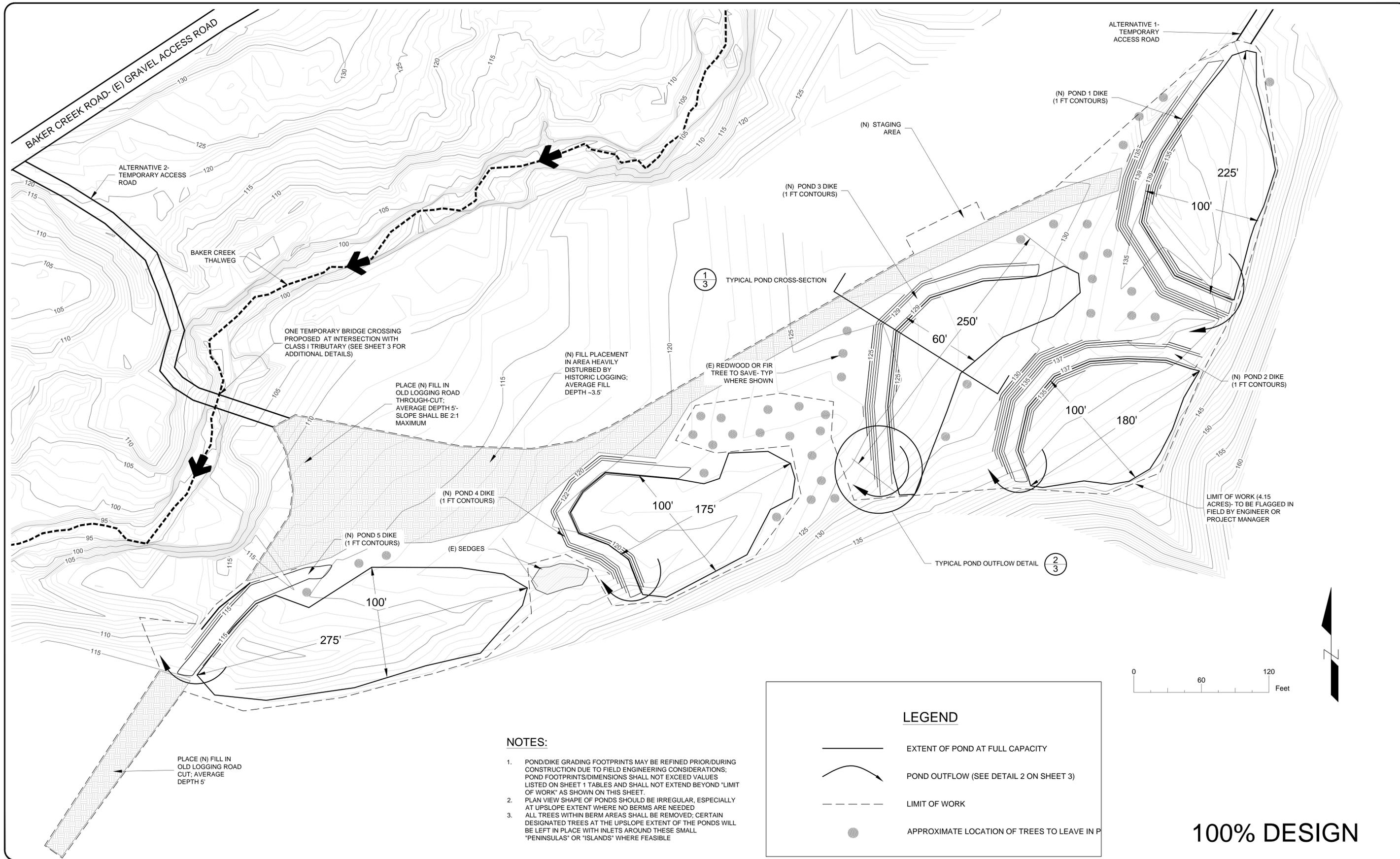


Design: JM
 Drawn: JM
 Checked: PB
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TITLE SHEET

Size D Project 588.00
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 Sheet: 1 OF 3

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ONE TEMPORARY BRIDGE CROSSING PROPOSED AT INTERSECTION WITH CLASS I TRIBUTARY (SEE SHEET 3 FOR ADDITIONAL DETAILS)

PLACE (N) FILL IN OLD LOGGING ROAD THROUGH-CUT; AVERAGE DEPTH 5'-SLOPE SHALL BE 2:1 MAXIMUM

(N) FILL PLACEMENT IN AREA HEAVILY DISTURBED BY HISTORIC LOGGING; AVERAGE FILL DEPTH -3.5'

1/3 TYPICAL POND CROSS-SECTION

(E) REDWOOD OR FIR TREE TO SAVE- TYP WHERE SHOWN

2/3 TYPICAL POND OUTFLOW DETAIL

LIMIT OF WORK (4.15 ACRES)- TO BE FLAGGED IN FIELD BY ENGINEER OR PROJECT MANAGER

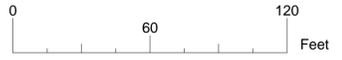
PLACE (N) FILL IN OLD LOGGING ROAD CUT; AVERAGE DEPTH 5'

NOTES:

1. POND/DIKE GRADING FOOTPRINTS MAY BE REFINED PRIOR/DURING CONSTRUCTION DUE TO FIELD ENGINEERING CONSIDERATIONS; POND FOOTPRINTS/DIMENSIONS SHALL NOT EXCEED VALUES LISTED ON SHEET 1 TABLES AND SHALL NOT EXTEND BEYOND "LIMIT OF WORK" AS SHOWN ON THIS SHEET.
2. PLAN VIEW SHAPE OF PONDS SHOULD BE IRREGULAR, ESPECIALLY AT UPSLOPE EXTENT WHERE NO BERMS ARE NEEDED
3. ALL TREES WITHIN BERM AREAS SHALL BE REMOVED; CERTAIN DESIGNATED TREES AT THE UPSLOPE EXTENT OF THE PONDS WILL BE LEFT IN PLACE WITH INLETS AROUND THESE SMALL "PENINSULAS" OR "ISLANDS" WHERE FEASIBLE

LEGEND

- EXTENT OF POND AT FULL CAPACITY
- POND OUTFLOW (SEE DETAIL 2 ON SHEET 3)
- LIMIT OF WORK
- APPROXIMATE LOCATION OF TREES TO LEAVE IN P



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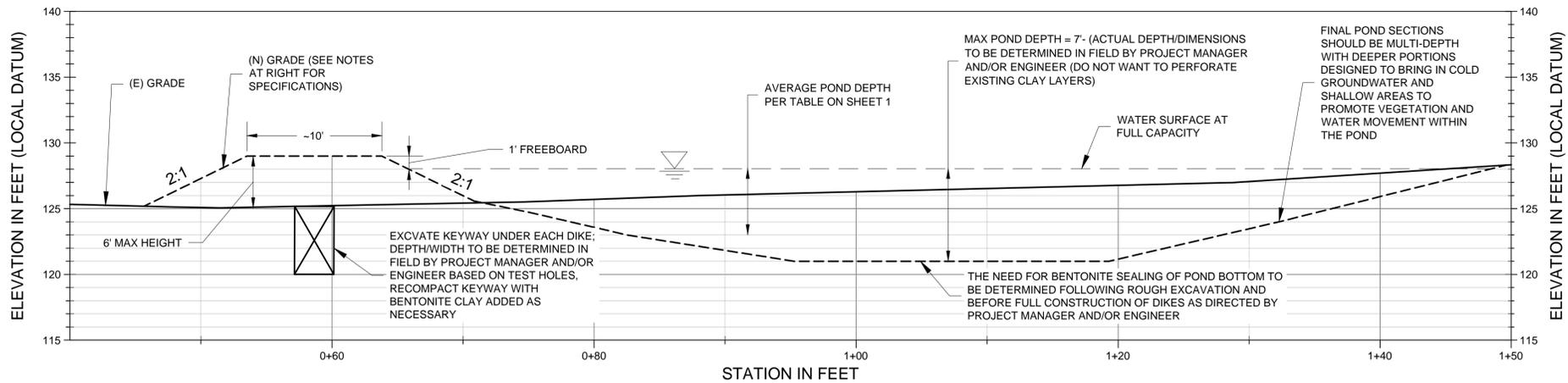


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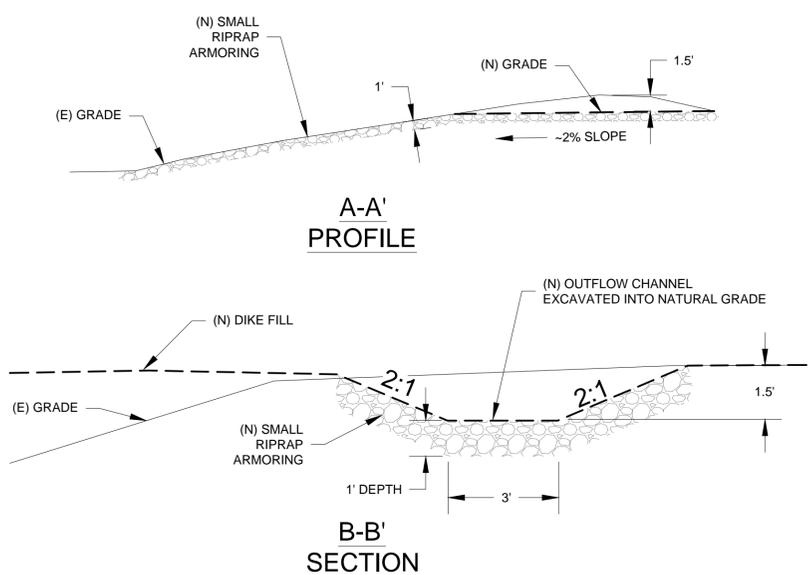
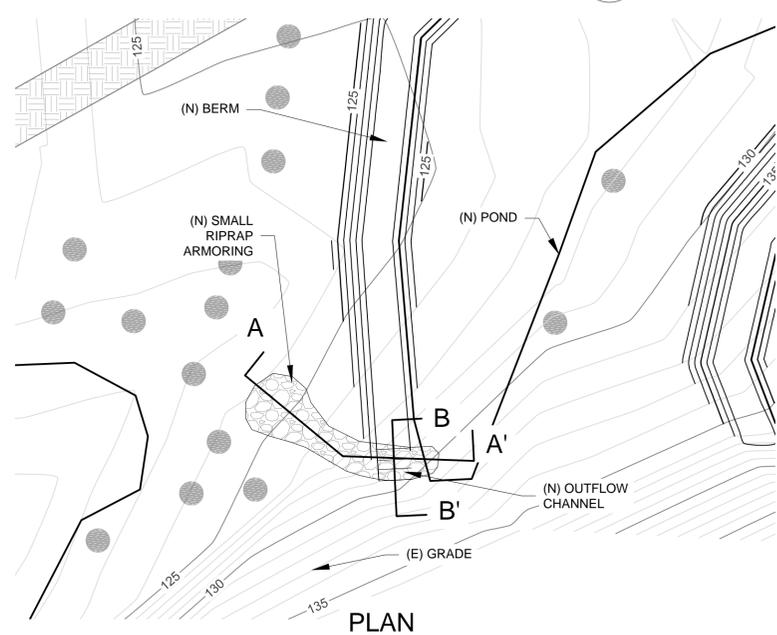
PROJECT DESIGN PLAN VIEW

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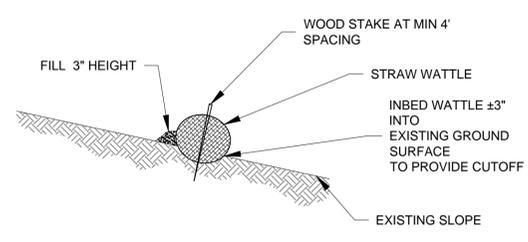
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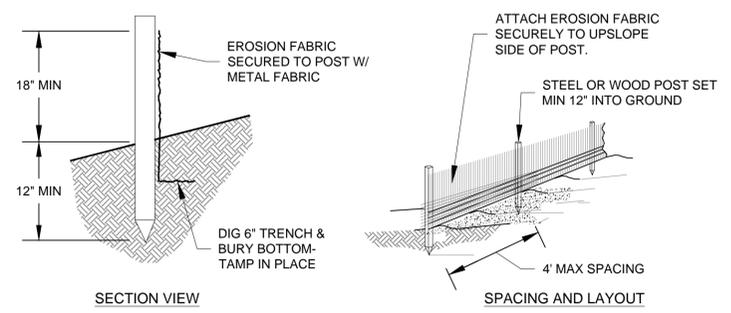
1 TYPICAL POND CROSS-SECTION
NTS



2 TYPICAL POND OUTFLOW
NTS



3 STRAW WATTLE DETAIL
NTS



4 SILT FENCING DETAIL
NTS

TEMPORARY ACCESS ROAD NOTES:

- LIMIT SOIL DISTURBANCE AREA TO MINIMUM WIDTH REQUIRED FOR SAFE TRAVEL OF EQUIPMENT AND LABORERS.
- USE HAND-BRUSHING AND LIMBING AS NECESSARY TO LIMIT HEAVY EQUIPMENT DISTURBANCE OF ADJACENT VEGETATION.
- UPON COMPLETION OF THE PROJECT, WATERBARS SHOULD BE INSTALLED AT A MINIMUM OF 75' SPACING OR CLOSER AS DIRECTED BY THE PROJECT MANAGER AND/OR ENGINEER; WATERBARS SHOULD BE CONSTRUCTED WITH A MINIMUM DEPTH OF 1.5' TO INSURE LONGEVITY.
- BRUSH SHOULD BE LAID BACK OVER THE ROAD ONCE CONSTRUCTION HAS BEEN COMPLETED.
- FOLLOW ALL GENERAL EROSION AND SEDIMENT CONTROL NOTES (BELOW).

TEMPORARY ACCESS ROAD STREAM CROSSING NOTES:

- TWO ALTERNATIVES FOR CONSTRUCTION ACCESS ARE SHOWN ON SHEETS 1 AND 2; ONLY ONE OPTION WILL BE USED.
- IF ALTERNATIVE 1 (PREFERRED ALTERNATIVE) IS USED:
 - THE ACCESS WILL CROSS AN INTERMITTENT STREAM THAT IS EXPECTED TO BE DRY WHEN THE TEMPORARY CROSSING IS INSTALLED.
 - THE CROSSING IS LOCATED AT AN EXISTING LOGGING ROAD CROSSING WHERE THE CHANNEL IS 1 FT DEEP BY 3 FT WIDE.
 - IF THE INTERMITTENT STREAM IS WET A TEMPORARY CULVERT WILL BE INSTALLED WITH AN EXCAVATOR.
 - SMALL COBBLE AND GRAVEL WILL BE PLACED TO FILL THE CROSSING AND ALLOW EQUIPMENT ACCESS.
 - WEED FREE STRAW BALES WILL BE PLACED AT THE UPSTREAM AND DOWNSTREAM EXTENT OF THE NEW GRAVEL/COBBLE FILL TO PREVENT EROSION IN THE EVENT OF SUMMER RAINS.
 - ONCE CONSTRUCTION IS COMPLETE THE GRAVEL, COBBLE, AND CULVERT WILL BE REMOVED AND THE APPROACHES WILL BE MULCHED TO MINIMIZE THE SEDIMENT DELIVERY AND DOWNSTREAM EFFECTS TO WATER QUALITY (NOTE SOME COBBLE MAY BE LEFT IN PLACE TO STABILIZE THE CROSSING AS DIRECTED BY THE PROJECT MANAGER AND/OR ENGINEER).
- IF ALTERNATIVE 2 IS USED:
 - THE ACCESS WILL CROSS A CLASS I WATERCOURSE THAT IS EXPECTED TO BE WET WHEN THE TEMPORARY CROSSING IS INSTALLED.
 - THE CHANNEL WILL BE SPANNED BY A TEMPORARY RAILCAR BRIDGE.
 - ONCE CONSTRUCTION IS COMPLETE, THE BRIDGE WILL BE REMOVED AND THE APPROACHES WILL BE MULCHED TO MINIMIZE SEDIMENT DELIVERY AND DOWNSTREAM EFFECTS TO WATER QUALITY.

EROSION AND SEDIMENT CONTROL NOTES:

- EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs) SHALL BE INSTALLED PRIOR TO THE WET SEASON (OCTOBER 1 THROUGH APRIL 30).
- SENSITIVE AREAS AND AREAS WHERE EXISTING VEGETATION IS BEING PRESERVED SHALL BE PROTECTED WITH CONSTRUCTION FENCING; FENCING SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION ACTIVITIES.
- ALL AREAS DISTURBED DURING GRADING ACTIVITIES SHALL BE SEEDED WITH NATIVE GRASS SEED AND MULCHED WITH RICE STRAW.
- PRIOR TO SEEDING AND STRAW, DISTURBED AREAS SHOULD BE ROUGHENED BY TRACK WALKING WITH A DOZER.
- STRAW SHALL BE APPLIED AT A UNIFORM RATE OF APPROXIMATELY 4000 LBS PER ACRE BY HAND.
- AT THE COMPLETION OF THE PROJECT, STRAW WATTLES SHALL BE PLACED AS DIRECTED BY ENGINEER.
- ALL SEDIMENT CONTROL BMPs SHALL BE MAINTAINED THROUGHOUT THE WET SEASON UNTIL NEW VEGETATION HAS BECOME ESTABLISHED ON ALL GRADED AREAS.

100% DESIGN

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